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136-87

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1885.

No. 137.

TALLMADGE E. BROWN, APPELLANT,

vs.

THE DISTRICT OF COLUMBIA.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

FILED OCTOBER 16, 1885.

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1 *Original Bill. Filed April 14th*, 1880.

In the Supreme Court of the District of Columbia, Sitting in Special Term. In Equity.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

The bill of complaint of the above-named complainant against the above-named defendant.

To the supreme court of the District of Columbia:

Tallmadge E. Brown, the above-named complainant, says—

1. That he is a resident of the State of Iowa and brings suit in his own right.

2. That the defendant is a body corporate for municipal purposes under the laws of the United States, and is sued in its own right.

3. That on the 13th day of October, 1865, one Turner Cowing, of the State of California, being then the original, true, and first inventor of a new and useful "improvement in wood pavements," ap-
2 plied in due form of law for letters patent of the United States therefor, and thereafter, on the 15th day of January, 1870, said Cowing assigned to this complainant all his right, title, and interest in said invention, and prayed the Commissioner of Patents that said letters patent when allowed should be issued to this complainant, his mesne assignee as aforesaid; and, after due proceedings had, letters patent No. 101,590 in due form were issued to this complainant for the said invention, dated April 5, 1870, granting to him, his executors, administrators, or assigns, for the term of seventeen years from the 5th day of April, 1870, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention.

4. That afterwards, to wit, on the third day of September, 1870, this complainant, by an instrument in writing of that date, sold, assigned, and transferred unto William W. Ballard two-fifths and to Edward L. Marsh one-fifth of his right, title, and interest in and to said letters patent and the invention thereby secured,
3 which said assignment was duly recorded in the United States Patent Office.

5. That prior to the 24th of August, A. D. 1869, William W. Ballard and Buren B. Waddell, of Memphis, Tennessee, became and were the joint, original, true, and first inventors of a new and useful "improvement in wood pavements," for which they afterwards made application in due form for letters patent of the United States; that thereafter and before the issuing of said letters patent the said Buren B. Waddell assigned all his right in said invention to said William W. Ballard; that thereafter and after due proceedings had letters patent of the United States were issued, in all respects in due form, to said William W. Ballard as the inventor and assignee of all

the said Waddell's interest in the invention thereby secured, which said letters patent are dated the 24th day of August, 1869, and numbered 94062, and grant and secure to him, the said William W. Ballard, his executors, administrators, or assigns, for the term of seventeen years from the 24th day of August, 1869, the full
4 and exclusive right and liberty of making, using, and vending to others to be used, the said invention.

6. That afterwards, to wit, on the twentieth day of September, 1869, the said William W. Ballard, by an instrument in writing of that date, sold, assigned, and transferred unto the complainant two-fifths and on the 3d day of September, 1870, by an instrument in writing of that date, sold, assigned, and transferred to Edward L. Marsh one-fifth of his right, title, and interest in and to said letters patent and the invention thereby secured, which said assignment was duly recorded in the United States Patent Office.

7. That prior to August 24th, 1869, William W. Ballard and Buren B. Waddell, both aforesaid, became and were the joint, original, true, and first inventors of a new and useful improvement in cutting blocks for wood pavements, and that thereupon they made application, in conformity with all the requirements of the law, for letters patent of the United States therefor; that thereafter and be-
5 fore the issuance of the said letters patent the said Waddell assigned, sold, and set over unto the said Ballard all his right, title, and interest in said letters patent and the invention thereby secured.

That hereafter and after due proceedings had letters patent No. 94063 were issued in due form to the said William W. Ballard for the said invention, dated the 24th day of August, 1869, granting to him, his executors, administrators, or assigns, for the term of seventeen years from the 24th day of August, 1869, the full and exclusive right and liberty of making, issuing, and vending to others to be used, the said invention.

8. That afterwards, to wit, on the twentieth day of September, 1869, the said William W. Ballard, by an instrument in writing of that date, assigned, sold, and transferred unto this complainant two-fifths and on the 3d day of September, 1870, by an instrument in writing of that date, sold, assigned, and transferred to said Edward L. Marsh one-fifth of his right, title, and interest in and to
6 said last-mentioned letters patent and the invention thereby secured; which said assignment was duly recorded in the United States Patent Office.

9. That afterwards, to wit, on the 20th day of June, 1874, the said William W. Ballard and Edward L. Marsh, by an instrument in writing of that date, assigned to this complainant all of their rights, equities, and causes of action against any and all persons whomsoever, and especially their interest in suits brought or to be brought for the infringement of any of said patents and in claims for royalty thereunder. Copies of the said letters patent numbered 101,590, 94062, and 94063 and of the said assignments dated September 20th, 1869, September 3d, 1870, and January 20th, 1874, are hereunto at-

tached, marked, respectively, Exhibits T. E. P. Nos. 1, 2, 3, 4, 5, 6, 7, 8, & 9, and made part hereof.

10. That the defendant, The District of Columbia, in the years 1870, 1871, 1872, 1873, 1874, 1875, and 1876, in violation of the rights of this complainant and of the rights acquired by him
7 by assignment as aforesaid, made, laid, and used wood pavements substantially like those described in and covered by said letters patent numbered 101,590, 94062, and 94063 on numerous streets, avenues, and alleys in the cities of Washington and Georgetown, in said District, whereby said complainant and his said assignors were deprived of great gains and profits and sustained great damage; but what was the exact or approximate number of square yards of such pavement made, laid, and used by the defendant this complainant does not know and cannot therefore aver. He says that these are facts within the knowledge of the defendant, and that until they shall fully appear in the answer of the defendant or in the evidence in this case he cannot say what is the amount of the damage which he has so sustained, but they exceed twenty-five hundred dollars.

The complainant therefore prays as follows:

1. That the defendant may be required without oath to
8 answer the premises and to set forth the number of square yards of wood pavement substantially like that described in the said letters patent numbered 101,590 and 94062 and 94063 or either of them made, laid, or used by it during the periods covered by the averments of this bill as to infringement of said patents.

2. That the defendant may be perpetually enjoined from further infringing said letters patent numbered 101,590, 94062, and 94063.

3. That an account may be taken, under the direction of the court, of the gains and profits which have accrued to the defendant from its said infringements, and also of the damages which have been sustained by this complainant and his said assignors by reason of said infringements, and that the defendant may be required to pay to the complainant such sum of money as may thereupon appear to be due to him from the defendant, with interest and costs.

That the writ of subpœna may issue out of this honorable
9 court against the defendant commanding it to appear, at some certain day to be named therein, to answer the premises and abide by and perform such order or decree as may be passed herein, and for such other and further relief as the nature of the case may require.

The defendant to this suit is the District of Columbia.

TALLMADGE E. BROWN.

I, on oath, say that I have read over the foregoing bill of complaint by me subscribed, and know the contents thereof; that the facts therein stated of my own knowledge are true, and those stated upon information and belief I believe to be true.

TALLMADGE E. BROWN.

Subscribed and sworn to before me this 15th day of March, 1880.
[SEAL.] E. G. THOMPSON,
Notary Public, New York County.

(Here follows diagram marked p. 10.)

10 UNITED STATES PATENT OFFICE.

TURNER COWING, of San Francisco, California, assignor to Tallmadge E. Brown, of Memphis, Tennessee.

Improvement in Wood Pavements.

Specification forming part of Letters Patent No. 101,590, dated April 5th, 1870.

To all whom it may concern:

Be it known that I, Turner Cowing, of the city and county of San Francisco, in the State of California, have invented a new mode of constructing wood pavements for streets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in providing and arranging blocks of a peculiar shape in manner to form wedge-shaped crevices for the reception of earth or gravel, and wherein such earth or gravel will be returned to act as a key to bind and confine the blocks in their place.

11 Figure 1 represents a section of road paved with the blocks, complete. Figure 2 represents the straight side of a block, with the inclined side at E. Fig. 3 represents the top of a block, and also the section of the base D. Fig. 4 represents the straight side of a block, which is set next to the inclined side of the adjoining block.

In Fig. 1 letter A represents the top of the block, B the side, and E the crevice and gravel. The blocks should, of course, be placed so that the gravel spaces may extend lengthwise across the direction of the street or road, so that, besides wedging and holding the blocks securely, they may furnish a better foothold for animals drawing heavy loads.

In the drawing the front edge of the pavement, as shown, represents the side next the curb or a section parallel to the curb.

It is obvious that the wedge-shaped crevices may also be formed by setting the above-described blocks so that two vertical sides and two inclined sides come together alternately, as shown in

12 Fig. 5; and it is equally obvious that two blocks having their vertical sides together may be replaced by a single block having two inclined faces, as shown in Fig. 6, without any material change of plan, and with a considerable saving of labor and expense in the construction.

To construct my pavement prepare the roadway by grading it to

Ex. J. E. B. No. 1.

T. Corning

10

Wood Pavement.

No. 101,690. Patented Apr. 5, 1870.

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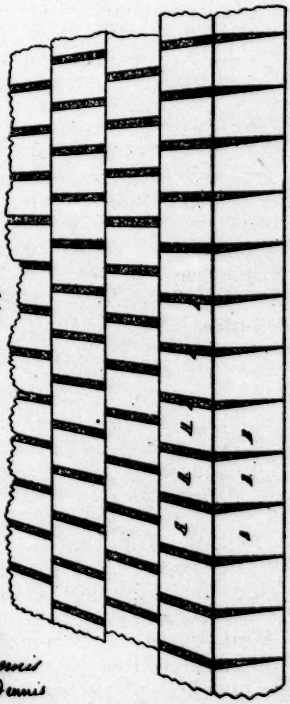

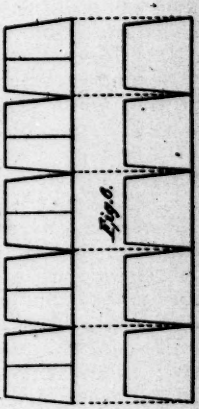

Witnesses:
Wm. H. Dennis
Wm. H. Dennis

Inventor:
Turner Corning
By his Atty J. Dennis Jr.

Ballard & Waddell.

Wood Pavement.

No. 94,062. Patented Aug. 24, 1869.

Fig. 1.

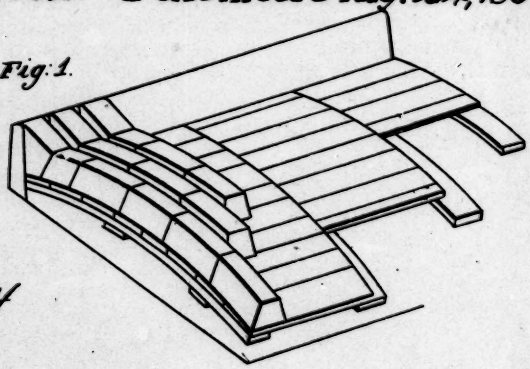

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Fig. 3

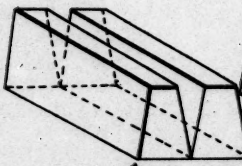


Fig. 2.

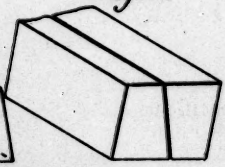
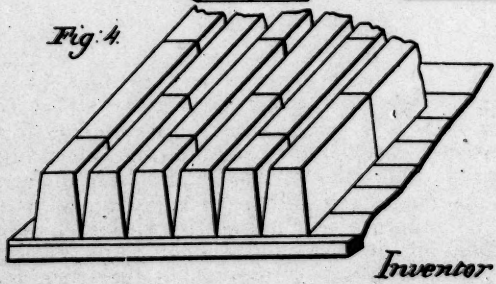


Fig. 4.



Witnesses
Samuel Smith
Henry J. Stultz

Inventor
Ballard & Waddell
by Alex. A. S. Wandell
Attorneys

the proper form and ramming solid; then set the blocks as shown in Fig. 1, confining them permanently — the curbs of walks; then fill and ram the crevices with earth and gravel.

I do not claim a wood pavement composed of wedge-shaped blocks when the blocks are laid alternately on larger and smaller ends so as to form a continuous surface of wood, but—

What I do claim, and desire to secure by letters patent of the United States, is—

A wood pavement composed of blocks, each side having a single plane surface and one or more of the sides being inclined,
13 and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth.

TURNER COWING.

Witnesses:

W. O. ANDREWS.
J. R. BRETT.

(Here follows diagram marked page 14.)

14 UNITED STATES PATENT OFFICE.

WILLIAM W. BALLARD, of Elmira, New York, and BUREN B. WADDELL, of Memphis, Tennessee. Buren B. Waddell assigns his right to Wm. W. Ballard.

Improved Wood Pavement.

Specification forming part of Letters Patent No. 94062, dated August 24, 1869.

To all whom it may concern:

Be it known that we, William W. Ballard, of Elmira, in the county of Chemung and State of New York, and Buren B. Waddell, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful improvements in street pavements; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a perspective view of a section of pavement
15 embracing our improvement. Fig. 2 is a perspective view of a piece of timber from which the block is cut and showing the cuts made by the saw; and Fig. 3 is a perspective view of two of the blocks laid alongside of each other.

To more clearly illustrate our invention we will proceed to describe the construction, &c., referring by letters to the drawings.

A represents the bed of the street, which is made slightly arched, the ends of the arch resting against the curbs B B. Strips C are laid

upon said arch at right angles to the curb and at convenient distances apart. Upon said strips is laid a flooring, composed of boards of any desired dimensions, and the blocks are then laid on this flooring in rows, and so as to break joints. These blocks are of a wedge shape, and are so laid as that their bases shall touch, forming a continuous arch across the street, and leaving V-shaped spaces between the rows. These spaces are filled with concrete or its equivalent, and the whole surface tarred over, if thought necessary.

16 The gutters are formed by inclining the bed slightly upward at the curb and splitting the ends of the blocks off to fit against the curb and the last one of the street blocks.

The peculiarity of the blocks used in this pavement is that they are wedge shaped and having both sides at acute angles with the base and the grain running parallel with one and oblique to the other of these sides.

A more perfect description of these blocks and the manner of producing them is given in another pending application, now on file in the United States Patent Office, entitled "A method of cutting blocks for street pavements," prepared and executed by us on the 29th day of September, 1868.

The advantages of blocks having both sides beveled, with the grain running, as described, over the ordinary wedge-shaped block, are first and most important—that only one corner of the base is at all likely to become broken off by transportation and rough

17 handling, whereas in the ordinary block both corners are liable to such accidents. Another advantage of the relation of grain to the sides of the block is that the V-shaped spaces have one perfectly smooth side, and consequently less opportunity is afforded to the gravel in the filling to jam and leave the lower portion of the space loosely or entirely unfilled. This is believed to be a difficulty in pavements constructed of wedge-shaped blocks having the grain running vertically, and thereby exposing the fiber on both the beveled sides of the blocks.

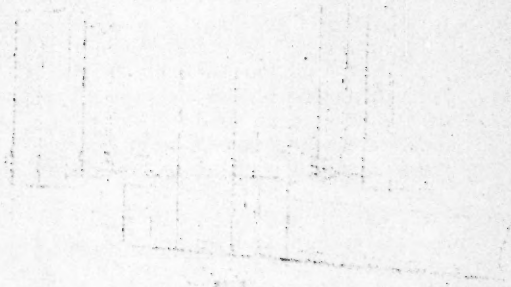
A pavement constructed of our improved blocks can be laid at a less cost than any other wedge-shaped pavement, owing to the cheapness of the blocks.

It has always been desirable to built pavements of wedge-shaped blocks, as they make a stronger and more durable pavement and are more easily laid, but so far it has been impracticable, owing to the expense of producing the blocks caused by the waste in material and extra sawing.

18 Having described the construction and advantage of our improved pavement, what we claim as new and desire to secure by letters patent is—

1. As an article of manufacture, wedge-shaped blocks having the grain running parallel to one and oblique to the other of their beveled sides, and produced substantially in the manner referred to.

2. A wooden street pavement constructed, substantially as hereinbefore described, of wedge-shaped blocks with the grain running and produced in the manner and for the purpose set forth.



Ex J. E. B. No. 3.

W. W. Ballard & B. B. Waddell, 19

Wood Pavements.

No. 94,063. Patented Aug. 24. 1869.

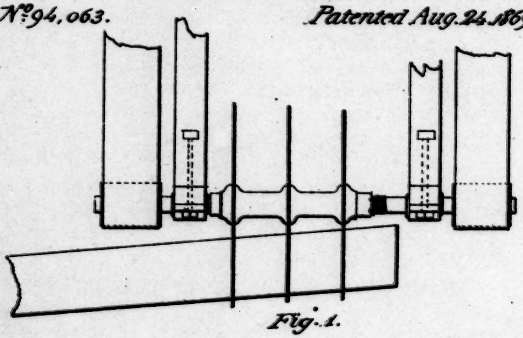


Fig. 1.

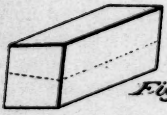


Fig. 2.

Fig. 3.

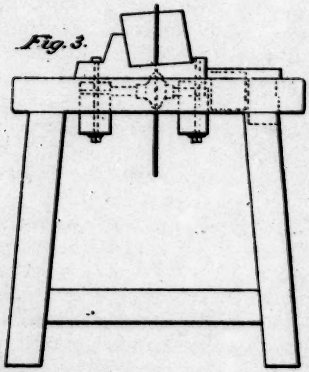


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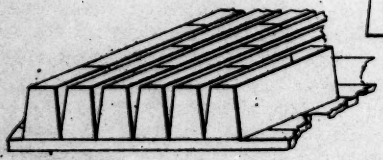
Fig. 4.



attest:
E. Sherman
Benj. W. Lipkerd.

Inventor;
Wm. W. Ballard
Burrin B. Waddell

In testimony whereof we have hereunto set our hands and affixed our seals this 19th day of July, 1869.

W. W. BALLARD. [L. S.]
BUREN B. WADDELL. [L. S.]

In presence of—
JOHNSTON G. FINNIE.
GEO. W. L. CROOK.

(Here follows diagram marked page 19.)

19 UNITED STATES PATENT OFFICE.

WILLIAM W. BALLARD, of Elmira, New York, and BUREN B. WADDELL, of Memphis, Tennessee. Buren B. Waddell assigns all his right to William W. Ballard.

Improved Mode of Cutting Blocks for Wood Pavement.

Specification forming part of Letters Patent No. 94063, dated August 24th, 1869.

To all whom it may concern:

Be it known that we, W. W. Ballard, of Elmira, Chemung county, New York, and B. B. Waddell, of Memphis, Shelby county, Tennessee, have invented an improved mode of cutting blocks for street pavement; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification.

Figure 1 represents the lumber as the blocks are being cut off in order to give the ends of the blocks the proper angle or bevel.
20 Fig. 2 represents the blocks after being cut off as above described before splitting. Fig. 3 represents the blocks in the act of being split on a saw-table, showing the rest or guide necessary to cut them in the proper direction. Fig. 4 represents the blocks finished and placed in the pavement.

Our invention consists in a novel method of cutting and splitting blocks for wood pavement in such a manner that two cuts, or rather one cut and one splitting, will produce two finished blocks with level top and bottom and two sides beveled, one being with the grain and the other slightly oblique to the grain, without more waste of timber than is occasioned by the saws.

We take a piece of lumber four and a half feet long, twelve inches wide, and seven inches thick. This is placed under the saws, as shown in Fig. 1, in an inclined position, so that the first cut will produce blocks with two sides inclined, the top and bottom level or in parallel planes. The first cut produces nine blocks, such
21 as shown in Fig. 2, out of a piece of lumber, as described above. Each such block will then be twelve inches long, six inches high with the fiber, and seven inches wide across the fiber. These blocks are then split, as indicated in dotted lines, Fig. 2,

slightly oblique to the fiber, as seen also in Fig. 3, being brought toward the splitting saw in an inclined position, inclined in contradistinction to a position level at top and bottom, in such a manner that the line of the cut will form the other two beveled sides of two blocks, each of which has the top and bottom level, or in parallel planes, and the sides beveled, as shown in Fig. 4, and, moreover, has the grain running in the direction of one of the beveled sides, as clearly shown in Figs. 2 and 3. These blocks will then be twelve inches long, six inches high, three inches wide at top, and four inches wide at the base.

The figures of feet and inches we have, of course, used only as an illustration, as different dimensions of lumber may be used, but those given will do for an ordinary street block.

22 The two great advantages of this method are economy of lumber and of labor and time, the only loss of lumber being the small pieces cut off at each end to start the bevel. Each two cuts, or rather one cut and one splitting, produces two complete blocks ready for use.

Having thus described our invention, what we desire to secure by letters patent is—

The herein-described method of cutting blocks for wooden pavement, so as to form by two cuts, or one cut and one splitting, two finished blocks with top and bottom level, or in parallel planes, and the sides beveled, one side being inclined with the fiber, and without waste of material, substantially as set forth.

WM. W. BALLARD. [L. S.]
BUREN B. WADDELL. [L. S.]

Witnesses:
E. SHERMAN.
BEN. A. SHEPHERD.

23 Ex. T. E. B. No. 4.

Whereas I, Turner Cowing, of the city and county of San Francisco, California, did invent certain improvements in wood pavements, for which I did, in the month of October, 1865, or thereabouts, make application for letters patent of the United States;

And whereas Tallmadge E. Brown, of Memphis, Tennessee, has agreed to purchase from me all the right, title, and interest which I have or may have in or to the said invention in consequence of the grant of letters patent therefor, and has paid to me, the said Turner Cowing, the sum of one dollar, the receipt of which is hereby acknowledged:

Now, this indenture witnesseth: That for and in consideration of the said sum to me paid I have assigned and transferred, and do hereby sell, assign, and transfer, to the said Tallmadge E. Brown the full and exclusive right to my said invention, with all the im-

24 provements made by me, as fully set forth and described by me in the specification which I have prepared and executed preparatory to the obtaining of letters patent therefor, and I do hereby authorize and request the Commissioner of Patents to issue

the said letters patent to the said Tallmadge E. Brown as the assignee of my whole right and title thereto for the sole use and benefit of the said Tallmadge E. Brown and his legal representatives.

In testimony whereof I have hereunto set my hand and affixed my seal this fifteenth day of January, 1870.

TURNER COWING. [L. S.]

[5c. stamp. T. C. Jan. 15th, 1870.]

Sealed and delivered in the presence of—
F. L. BOONE.
GEO. H. STRONG.

Recorded Mar. 23, 1870.

Ex. T. E. B. No. 5.

Whereas Turner Cowing, of San Francisco, California, did
25 make certain new and useful improvements in wood pavements, for which letters patent of the United States were granted on the 5th day of April, 1870, and numbered 101,590; and whereas I, Tallmadge E. Brown, of Des Moines, in the county of Polk and State of Iowa, *and* the sole owner of said invention and letters patent by assignment duly recorded at page 150 of Liber Q 12, "Transfer of Patents;" and whereas William W. Ballard, of Elmira, in the county of Chemung and State of New York, is desirous of acquiring an interest therein, and has paid me the sum of one dollar, receipt of which is hereby acknowledged:

Now, therefore, this indenture, witnesseth: That for and in consideration of the said sum to me paid I have assigned and transferred unto the said William W. Ballard one undivided two — ($\frac{2}{3}$) of all my right, title, and interest in and to the said invention as secured by the said letters patent, as well as any and all reissues that
26 may be granted, the same to be held and enjoyed by the said William W. Ballard and his legal representatives as fully and entirely as the same might have been held and enjoyed by me had this assignment and sale not been made.

Witness my hand and seal this 3d day of September, 1870.

TALLMADGE E. BROWN. [L. S.]

In presence of—
WM. C. McINTIRE.

Recorded Jan. 25th, 1876.

Ex. T. E. B. No. 6.

Whereas Turner Cowing, of San Francisco, California, did make certain new and useful improvements in wood pavements, for which letters patent of the United States were granted on the 5th day of April, 1870, and numbered 101,590;

5c. stamp. T. E. B. Sep. 3, 1870.

And whereas I, Tallmadge E. Brown, of Des Moines, in the county of Polk and State of Iowa, am the sole owner of said invention and letters patent by assignment duly recorded at page 150 of Liber Q 12, "Transfers of Patents;"

27 And whereas Edward L. Marsh, of New York, in the county of New York and State of New York, is desirous of acquiring an interest therein, and has paid to me the sum of one dollar, receipt of which is hereby acknowledged:

Now, therefore, this indenture witnesseth: That for and in consideration of the said sum to me paid I have assigned and transferred, and do hereby assign and transfer, unto the said Edward L. Marsh one undivided one-fifth ($\frac{1}{5}$) of all my right, title, and interest in and to the said invention as secured by the said letters patent, as well as any and all reissues that may be granted, the same to be held and enjoyed by the said Edward L. Marsh and his legal representatives as fully and entirely as the same might have been held and enjoyed by me had this assignment and sale not been made.

Recorded Nov. 21st, 1870.

Witness my hand and seal this 3d day of September, 1870.

TALLMADGE E. BROWN.

In presence of—
WILLIAM C. McINTIRE.

28 Ex. T. E. B. No. 7.

Whereas letters patent of the United States were granted on the 24th day of August, A. D. 1869, to William W. Ballard, of Elmira, New York, and Buren B. Waddell, of Memphis, Tennessee, for "improved wood pavements," numbered 94062; and whereas certain other letters patent were granted on the same day to the same parties for "improved mode of cutting blocks for wood pavements," numbered 94063; and whereas I, William W. Ballard, above mentioned, became the sole owner of the entire right, title, and interest in and to the hereinbefore-recited letters patent by assignment duly executed, respectively, on the 19th day of July, 1869, and on the 19th day of July, 1869, and recorded, respectively, at page 172, Liber A 12, and page 171, Liber A 12, "Transfers of Patents;"

And whereas I, William W. Ballard, did obtain in my own name certain other letters patent on the 24th day of August,
29 1869, for "improved machine for sawing blocks for paving," numbered 94061, which letters patent I have surrendered, with petition for reissue;

And whereas Tallmadge E. Brown, of Des Moines, Iowa, is desirous of acquiring an interest in all three of the herein-mentioned letters patent and any reissue thereof that may be granted, and has paid to me the sum of five dollars, receipt of which is hereby acknowledged:

Now, this indenture witnesseth: That for and in consideration of the said sum to me in hand paid I have assigned and transferred, and do hereby assign and transfer, unto the said Tallmadge E. Brown

an undivided two-fifths (⅖) interest in and to each and all three of the hereinbefore-recited letters patent and any reissues that may be granted thereon, the same to be held and enjoyed by the said Tallmadge E. Brown for his own use and behoof and for the use and behoof of his legal representatives to the full end of the term for
30 which the said letters patent were originally granted as fully and entirely as the same might have been held and enjoyed by me had this assignment and transfer not been made.

In testimony whereof I have hereunto set my hand and seal this 20th day of September, A. D. 1869.

[SEAL.] W. W. BALLARD.

[5-c. stamp. W. W. B. Sept. 20, 1869.]

Signed, sealed, and delivered in presence of—
W. C. McINTIRE.
HENRY S. JOHNSON.

Recorded Sept. 20, 1869.

Ex. T. E. B. No. 8.

Whereas I, William W. Ballard, of Elmira, in the county of Chemung and State of New York, am the sole owner of certain letters patent for wood pavements and machinery for cutting the blocks being letters patent numbered 94061, 94062, and 94063, dated August 24th, 1869; No. 99391, dated February 1st, 1870, and No. 105,292, dated July 12th, 1870;

[3-c. stamp, cancelled. Sept. 3, 1870.]

31 And whereas Edward L. Marsh, of New York city, in the county and State of New York, is desirous of acquiring an interest therein;

Now, this indenture witnesseth: That for and in consideration of the sum of one dollar to me in hand paid, receipt of which is hereby acknowledged, I have assigned and transferred, and do hereby assign and transfer, unto the said Edward L. Marsh one undivided fifth part of all my right, title, and interest in and to the herein-recited letters patent and the invention hereby secured, the same to be held and enjoyed by the said Edward L. Marsh for his own use and behoof and the use and behoof of his legal representatives to the full end of the term for which letters patent are granted, as fully and entirely as the same might have been held and enjoyed by me had this assignment and transfer not been made, the same rights and privileges to extend to any reissue of the said letters patent which may be granted.

32 Witness my hand and seal this 3d day of September, 1870.

WILLIAM W. BALLARD.

Signed, sealed, and delivered in presence of—
WM. C. McINTIRE.

Recorded Nov. 21, 1870.

Ex. T. E. B. No. 9.

This is to certify that the Ballard Pavement Co., composed of W. W. Ballard, T. E. Brown, and E. L. Marsh, have sustained great losses in consequence of the failure of the District of Columbia to perform its contracts with said company and pay said company its just dues, and that the debts of the said company, some fifty thousand ($50,000.00) dollars, have been paid in part and the remainder assumed by said Brown.

Now, therefore, in consideration of the premises, the said Ballard and Marsh hereby assign, transfer, and set over unto the said
33 Brown all their interest, of whatever kind, in any of the assets, claims, contracts, suits brought and to be brought, claims for royalty and damages for infringements of patents, damages for breaches of contract, balances due for work and labor performed, differences between the market value of certificates received by said company and the face value thereof, and any and all other rights, equities, and causes of action against any and all parties whomsoever.

Dated at Washington, D. C., this 20th day of June, A. D. 1874.

W. W. BALLARD.
E. L. MARSH.

34 *Subpœna to Answer. Issued April* 14, 1880.

In the Supreme Court of the District of Columbia, April 14, 1880.

TALLMADGE E. BROWN, Complainant,
against
DISTRICT OF COLUMBIA, Defendant. } No. 7239, Eq. Doc. 20.

The President of the United States to the District of Columbia, defendant:

You are hereby commanded to appear at this court at its first special term occurring twenty days after service of this subpœna and answer the exigency of the original bill this day filed and entitled as above, under pain of attachment and such other process of contempt as the court shall award.

Witness D. K. Cartter, chief justice.

R. J. MEIGS, *Clerk, &c.*,
By M. A. CLANCY, *Ass't Clerk.*

MEMORANDUM.—That the defendant herewith served is to enter its appearance in this suit in the clerk's office on or before the day at which this writ is returnable; otherwise the bill may be taken for confessed.

Marshal's Return.

Summoned def't by service on Wm. J. Twining, Com'r, April 14, 1880.

F. DOUGLASS, *Marshal.*

35 *Defendant's Plea. Filed Apr. 21st, 1880.*

In the Supreme Court of the District of Columbia. In Eq.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

The plea of the defendants, The District of Columbia, to the bill of complaint against it herein filed.

This defendant, by protestation, not confessing or acknowledging all or any of the matters and things in the said bill of complaint contained to be true in manner and form as the same are herein set forth, for plea, nevertheless, to the said bill doth plead and aver—

That the alleged cause of action set out and contained in the bill of complaint herein filed did not accrue within three (3) years before the filing of complainant's bill.

Wherefore this defendant prays judgment of this court
36 whether it should be required to make any further answer to the said bill, and prays to be hence dismissed with its reasonable costs and charges in this behalf sustained.

A. G. RIDDLE,
Solicitor for Defendant.

I certify that the above plea is, in my opinion, well founded in point of law.

A. G. RIDDLE, *Att'y.*

I, W. J. Twining, one of the U. S. Commissioners for the District of Columbia, do solemnly swear that the above plea is not interposed for delay and that the same is true in point of fact.

W. J. TWINING.

Subscribed and sworn to before me this the 20th day of April, 1880.
[SEAL.] WILLIAM TINDALL,
Notary Public.

37 *Motion for Leave to Amend Bill. Filed May 20, 1880.*

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

The complainant moves the court to give him leave to amend his bill of complaint by striking out, in the 10th paragraph thereof, the words and figures "1873, 1874, 1875, and 1876" and inserting in lieu thereof the words and figures "and between the first day of January and the last day of November, in the year 1873."

WORTHINGTON & HEALD,
Solicitors for Complainant.

I am willing that the amendment should be made as above.

RIDDLE, *Att'y D. C.*

The plea may stand to the amended bill.

RIDDLE, *Att'y D. C.*

38 *Order Granting Leave to Amend the Bill. Filed May* 20, 1880.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

Upon consideration of the motion of the solicitors for the complainant this day filed and the consent of the solicitor for the defendant thereto subjoined, it is, this 25th day of May, 1880, ordered that the complainant have leave to amend his bill of complaint in accordance with the terms of his motion.

A. B. HAGNER,
Asso. Justice.

Amendment to Bill. Filed May 21*st*, 1880.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7238, Eq. Doc. 20.

By leave of the court first had and obtained the com-
39 plainant hereby amends his bill of complaint by striking out, in the tenth paragraph of the same, the words and figures "1873, 1874, 1875, and 1876" and inserting in lieu thereof the words and figures "and between the first day of January and the last day of November, in the year 1873."

WORTHINGTON & HEALD,
Solicitors for Complainant.

Order Granting Leave to Further Amend the Bill. Filed June 10, 1880.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

Upon motion of the solicitors for the complainant, it is, this 10th day of June, 1880, ordered that the complainant have leave to amend his amended bill of complaint in this case by striking out, in the tenth paragraph thereof, the words and figures "and between the

first day of January and the last day of November, in the year 1873," and inserting in lieu thereof the words and figures "1873, and between the first day of January, 1874, and the 22nd day of June, 1874."

WALTER S. COX, *Justice.*

40 *Amendment to Amended Bill. Filed June* 10, 1880.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

By leave of the court the complainant hereby further amends his bill of complaint in this case by striking out, in the tenth paragraph thereof, the words and figures "and between the first day of January and the last day of November, in the year 1873," and inserting in lieu thereof the words and figures "1873, and between the first day of January, 1874, and the 22nd day of June, 1874."

WORTHINGTON & HEALD,
Solicitors for Compl't.

Let the plea of the Dist. of Columbia to the original bill stand as a plea to amended bill.
June 10th, 1880.

FRANCIS MILLER, *A. A. D. C.*

41 *Demurrer. Filed Sep.* 22, 1880.

In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

This defendant, by protestation, not confessing or acknowledging all or any of the matters and things in the said bill of complaint contained to be true in manner or form as the same are therein set forth, doth demur thereto and for cause of demurrer show that the said complainant hath not in and by his said bill stated such a case as doth or ought to entitle him to any such discovery or relief as is thereby sought and prayed for from or against this defendant. Wherefore, and for divers other errors and imperfections in said bill contained, this defendant demands the judgment of this court whether *he* shall be com- to make any further or other an-
42 swer to the said bill or any of the matters and things therein contained, and prays to be hence dismissed with its reasonable costs in this behalf sustained.

FRANCIS MILLER,
Attorney for the District of Columbia.

I hereby certify that the foregoing demurrer is well founded in point of law and not interposed for delay.

FRANCIS MILLER,
Attorney for the District of Columbia.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

Set down demurrer for argument.
Sept. 22, 1880.

WORTHINGTON & HEALD,
Att'ys for Pl'tiff.

43 *Order Overruling Demurrer and Giving Def't Time to Answer. Filed Oct.* 4, 1880.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

This cause came on to be heard at this term upon the bill of complaint and the demurrer of the defendant thereto, and was argued by counsel for the respective parties; and, upon consideration thereof, it is, this 4th day of October, 1880, ordered that said demurrer be, and it is hereby, overruled; and, the defendant's counsel having in open court asked for leave to answer the bill, it is further ordered that time be given the defendant for that purpose to and including the 7th day of *of* December, 1880.

W. S. COX, *J.*

44 *Plea. Filed Dec.* 9, 1880.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

The plea of the District of Columbia to the bill of complaint herein filed.

This defendant, by protestation, not confessing or acknowledging all or any of the matters and things in the said bill of complaint contained to be true in manner and form as the same are therein set forth, for plea, nevertheless, to the said bill, doth plead and aver—

That the complainant and patentees had, prior to the alleged in-

fringement, laid their pavement, and the defendant had no notice of the fact that it was infringing the patents or either of them.

Wherefore this defendant humbly prays judgment of this
45 court whether *he* shall be compelled to make any further or other answer to the said bill of complaint, and prays to be dismissed with its reasonable costs and charges in this behalf sustained.

FRANCIS MILLER,
Solicitor for Defendant.

I, Josiah Dent, one of the Commissioners for the District of Columbia, do solemnly swear on affirmation and belief that the above plea is not interposed for delay and is true in point of fact.

J. DENT.

Subscribed and sworn to before me this the eighth day of December, 1880.

[SEAL.] WILLIAM TINDALL,
Notary Public.

I certify that in my opinion the above plea is well founded in point of fact.

FRANCIS MILLER,
Solicitor for Defendant.

46 *Decree Overruling Plea. Filed Jan.* 27, 1881.

In the Supreme Court of the District of Columbia. In Equity.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

This cause came on to be heard at this term upon bill and the plea last filed by the defendant, and was argued by counsel for the respective parties; and, upon consideration thereof, it is, this 27th day of January, 1881—

Ordered, adjudged, and decreed that said plea be, and it is hereby, overruled, but without prejudice to the right of the defendant to make the same defence in its answer; and it is further ordered that the defendant have leave to file an answer in this case on or before the 26th day of February, 1881.

W. S. COX, *J.*

47 *Answer to Original Bill. Filed Apr.* 1, 1885.

In the Supreme Court of the District of Columbia. In Eq.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

The answer of the District of Columbia to the bill of complaint herein respectfully represents—

1st and 2nd. That it admits the statements contained in the first and second paragraphs of said bill.

3rd, 4th, 5th, 6th, 7th, 8th, 9th. That it is not informed as to the statements contained in paragraphs three (3) to nine (9), inclusive, and does not admit the truth of the same, but if the same be deemed material to the issues of this cause it demands strict proof thereof.

10th. For answer to the tenth paragraph of said bill this defendant says that no pavements were laid down within the District of Columbia under the patents named in said bill, to the best of its knowledge and belief; that none of the contracts made
48 by the Board of Public Works of the District of Columbia called for pavements to be laid under said patents. This defendant denies that it in any way violated the rights of the complainant, and says that it is not indebted in any manner to said complainant on account of his said alleged patents.

Further answering said bill, this defendant says that all the substantial claims of the complainant's alleged patents were covered by previous patents granted to —— Nicholson, being patent No. —, issued by the United States Patent Office on the — day of ——, 18—; to D. L. De Golyer, patent No. 88765, issued April 6th, 1879; to Alexander Miller and C. Mason, No. 76227, issued March 31, 1868; to Henry M. Stone, No. 72110, issued December 10th, 1867, and to H. L. Cranford, No. 93280, issued August 3d, 1869, and by patents granted to others; that wooden pavements in all substantial
49 particulars identical with those described in the alleged letters patent have been laid and used more than two (2) years before the said patents were applied for by the cities of Chicago, St. Louis, Cincinnati, Cleveland, Buffalo, New York, and Boston.

And that the said complainant and his assignors were present in said District while these pavements for which he claims damages were being laid, and knew of the fact that the District was contracting to have them laid under the various patents for wooden pavements that were used, and that neither he nor they ever in any manner informed or notified the said District that in making said contracts and laying said pavements it was violating his rights or infringing his patents; nor did the complainant or his assignors ever give, as required by law, sufficient notice to the public or this defendant that his alleged invention was patented.

50 And, for further answer to said bill, this defendant says that the alleged patents are null and void, for the reason that

the alleged invention is neither new nor useful; and it further avers that any damages that may have occur-ed to any one in connection with the laying of said pavements have fallen most heavily and disasterously upon the said District.

And, further answering, this defendant says that the matters and things set up in the complainant's declaration and of which the complainant complains are barred by the statute of limitations.

And now, having fully answered, this deponent prays to be hence dismissed with its reasonable costs in this behalf sustained.

[D. C. SEAL.] By FRANCIS MILLER,
Its Solicitor.

51 *Replication. Filed Apr.* 4, 1881.

In the Supreme Court of the District of Columbia.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

The plaintiff joins issue upon the defendant's answer and will hear the cause on bill, answer, and proofs.

WORTHINGTON & HEALD,
Sol'rs for Compl't.

Order Fixing Time for Taking Depositions. Filed Apr. 5th, 1881.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. —.

Upon motion of the solicitor for the complainant it is, this 5th day of April, 1881, ordered that the complainant shall be allowed twenty days from this date for taking his evidence-in-chief; that the
52 defendant shall be allowed thirty days after the complainant closes his evidence-in-chief to take evidence in reply, and that the complainant shall be allowed ten days after the defendant shall close its evidence to take depositions in rebuttal.

By the court:

A. WYLIE.

53 *Testimony for Complainant. Filed Jun. 6th*, 1881. *R. J. Meigs, Clerk.*

In the Supreme Court of the District of Columbia.

T. E. BROWN
v.
DISTRICT OF COLUMBIA. } Eq. No. 7239, Doc. 20.

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ALBERT HARPER, *Examiner.*

54 DISTRICT OF COLUMBIA, } *ss:*
County of Washington,

In the Supreme Court of the District of Columbia.

T. E. BROWN
v.
DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

Be it remembered that at an examination of witnesses begun and held on the 8th day of April, 1881, and continued from time to time by adjournment until the 13th day of April, 1881, when the within depositions were taken, I, Albert Harper, an examiner in chancery, did cause to be personally present at the office of Messrs. Worthington & Heald, at different times, in the city of Washington, in said District, the within-named witnesses to testify on the part and behalf of the complainant in a certain cause now depending in the supreme court of the District of Columbia, wherein Tallmadge E. Brown is complainant and The District of Columbia is defendant.

Washington, D. C., June 6th, 1881.

ALBERT HARPER,
Examiner in Chancery.

55 In the Supreme Court of the District of Columbia.

T. E. BROWN
v.
DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

The defendant will take notice that the plaintiff will proceed to take the testimony of witnesses in the above-entitled cause on Thurs-

day, the 7th day of April, 1881, before Albert Harper, examiner in chancery, at the office of Worthington & Heald, No. 501 F street northwest, Washington, D. C., commencing at two o'clock p. m., and continuing from day to day until said testimony shall be completed.

WORTHINGTON & HEALD,
Sol'rs for Complainant.

To Francis Miller, Esq., sol'r for def't.

Service acknowledged this 6th day of April, 1881.

A. G. RIDDLE,
Att'y D. C.

55*a* In the Supreme Court of the District of Columbia. In Equity.

TALLMADGE E. BROWN
v.
THE DISTRICT OF COLUMBIA. } No. 7239, Doc. 20.

THURSDAY, *April 7th*, 1881—2 'cl'k p. m.

Met pursuant to the foregoing notice.

Present: Mr. J. C. Heald, of counsel for complainant.

Owing to inability of the counsel for defendant to appear, adjourned until to-morrow (Friday), April 8th, 1881, at 2 o'clock p. m.

ALBERT HARPER, *Examiner.*

FRIDAY, *April 8th*, 1881—2 'cl'k p. m.

Met pursuant to adjournment.

Present: Messrs. Worthington & Heald, counsel for complainant, and Francis Miller, Esq., counsel for the defendant.

Whereupon counsel for complainant offer in evidence the following documents:

1st. Certified copy of letters patent of the United States granted to Tallmadge E. Brown April 5th, 1870, No. 101,590, which
56 is herewith filed in evidence and marked "Exhibit A."

2d. Certified copy of an assignment from Tallmadge E. Brown to William W. Ballard of two-fifths interest in said patent No. 101,590, dated September 3d, 1870, which is herewith filed in evidence and marked "Exhibit B."

3d. Certified copy of an assignment from Tallmadge E. Brown to Edward L. Marsh of one-fifth interest in said patent No. 101,590, which is herewith filed in evidence and marked "Exhibit C."

4th. Certified copies of letters patent of the United States issued to William W. Ballard August 24th, 1869, No. 94062, which is herewith filed in evidence and marked "Exhibit D."

5th. Certified copy of an assignment dated 20th of September, 1869, from William W. Ballard to Tallmadge E. Brown of two-fifths interest in said patents Nos. 94062 and 94063, which is filed herewith in evidence and marked "Exhibit E."

6th. Certified copy of an assignment dated 3d of September, 1870,

53 *Testimony for Complainant. Filed Jun. 6th, 1881. R. J. Meigs, Clerk.*

In the Supreme Court of the District of Columbia.

T. E. BROWN
v.
DISTRICT OF COLUMBIA. } Eq. No. 7239, Doc. 20.

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ALBERT HARPER, *Examiner.*

54 DISTRICT OF COLUMBIA, *County of Washington,* } *ss:*

In the Supreme Court of the District of Columbia.

T. E. BROWN
v.
DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

Be it remembered that at an examination of witnesses begun and held on the 8th day of April, 1881, and continued from time to time by adjournment until the 13th day of April, 1881, when the within depositions were taken, I, Albert Harper, an examiner in chancery, did cause to be personally present at the office of Messrs. Worthington & Heald, at different times, in the city of Washington, in said District, the within-named witnesses to testify on the part and behalf of the complainant in a certain cause now depending in the supreme court of the District of Columbia, wherein Tallmadge E. Brown is complainant and The District of Columbia is defendant.

Washington, D. C., June 6th, 1881.

ALBERT HARPER,
Examiner in Chancery.

55 In the Supreme Court of the District of Columbia.

T. E. BROWN
v.
DISTRICT OF COLUMBIA. } No. 7239, Eq. Doc. 20.

The defendant will take notice that the plaintiff will proceed to take the testimony of witnesses in the above-entitled cause on Thurs-

day, the 7th day of April, 1881, before Albert Harper, examiner in chancery, at the office of Worthington & Heald, No. 501 F street northwest, Washington, D. C., commencing at two o'clock p. m., and continuing from day to day until said testimony shall be completed.

WORTHINGTON & HEALD,
Sol'rs for Complainant.

To Francis Miller, Esq., sol'r for def't.

Service acknowledged this 6th day of April, 1881.

A. G. RIDDLE,
Att'y D. C.

55a In the Supreme Court of the District of Columbia. In Equity.

TALLMADGE E. BROWN
v.
THE DISTRICT OF COLUMBIA. } No. 7239, Doc. 20.

THURSDAY, *April 7th*, 1881—2 'cl'k p. m.

Met pursuant to the foregoing notice.

Present: Mr. J. C. Heald, of counsel for complainant.

Owing to inability of the counsel for defendant to appear, adjourned until to-morrow (Friday), April 8th, 1881, at 2 o'clock p. m.

ALBERT HARPER, *Examiner.*

FRIDAY, *April 8th*, 1881—2 'cl'k p. m.

Met pursuant to adjournment.

Present: Messrs. Worthington & Heald, counsel for complainant, and Francis Miller, Esq., counsel for the defendant.

Whereupon counsel for complainant offer in evidence the following documents:

1st. Certified copy of letters patent of the United States granted to Tallmadge E. Brown April 5th, 1870, No. 101,590, which
56 is herewith filed in evidence and marked "Exhibit A."

2d. Certified copy of an assignment from Tallmadge E. Brown to William W. Ballard of two-fifths interest in said patent No. 101,590, dated September 3d, 1870, which is herewith filed in evidence and marked "Exhibit B."

3d. Certified copy of an assignment from Tallmadge E. Brown to Edward L. Marsh of one-fifth interest in said patent No. 101,590, which is herewith filed in evidence and marked "Exhibit C."

4th. Certified copies of letters patent of the United States issued to William W. Ballard August 24th, 1869, No. 94062, which is herewith filed in evidence and marked "Exhibit D."

5th. Certified copy of an assignment dated 20th of September, 1869, from William W. Ballard to Tallmadge E. Brown of two-fifths interest in said patents Nos. 94062 and 94063, which is filed herewith in evidence and marked "Exhibit E."

6th. Certified copy of an assignment dated 3d of September, 1870,

from William W. Ballard to Edward L. Marsh, conveying
57 one-fifth interest in said patent No. 94062 and other patents, which is herewith filed in evidence and marked "Exhibit F."

7th. Certified copy of letters patent of the United States granted to William W. Ballard August 24th, 1869, No. 94063, which is herewith filed in evidence and marked "Exhibit G."

And thereupon TALLMADGE E. BROWN, being produced as complainant'- witness, of lawful age and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

1 Q. You are the complainant, Mr. Brown, in this case?
A. I am.
2 Q. Where do you reside and what is your age?
A. Des Moines; I am fifty years of age.
3 Q. Please look at the document which I now hand you and state if you recognize the signatures thereon and whether they are genuine.
A. I do. They are the signatures of William W. Ballard and E. L. Marsh and are genuine.
58 4 Q. How do you recognize their signatures? Have you seen them write?
A. I am very well acquainted with their handwriting—both of them.
5 Q. In whose possession has that paper been since the time of its date?
A. In mine.

(Said paper is here offered in evidence by counsel for complainant, and the same is herewith filed in evidence and marked "Exhibit H.")
(It is here agreed by counsel for respective parties that the examiner shall make a copy of the above paper and file it herewith in evidence as above instead of the original.)

6 Q. From whom did you receive it?
A. I received it from Mr. Ballard and Mr. Marsh.
7 Q. Was there any consideration for the execution and delivery of that paper to you by them?
A. There was.
8 Q. What was it?
A. Well, I think it was considerably over fifty thousand dollars; largely over fifty thousand dollars.

59 APRIL 8TH, 1881.

TALLMADGE E. BROWN recalled.

Direct examination by Mr. WORTHINGTON:

1 Q. Do you know Alexander R. Shepherd?
A. I do.
2 Q. How long have you known him?
A. Since about 1870. I know he was the active man in the Board

of Public Works during its operations here, and the only man that did much with the contractors; the only man that the contractors could get to *to* do anything. Most of the contractors could not do anything but with him.

3 Q. Did you at that time, while Mr. Shepherd was a member of the Board of Public Works, have any conversation with him in reference to these patents which have been offered in evidence to-day in this case?

A. I remember such a conversation.

4 Q. When did it occur?

A. Well, I should say it occurred in the year 1872; I should say it was early in 1872.

5 Q. How do you fix the date?

60 A. Well, I think it was before we laid any pavements here and we laid our first pavement here in 1872.

6 Q. What time in 1872?

A. Well, we laid pavement on R street in about October, 1872; that is my best recollection.

7 Q. Where did this conversation take place?

A. In Shepherd's store on Pennsylvania —, in his office. People at that time had to go to his office at his store to transact public business, and then had to take their chances, as the boys do at the post office, to get in.

8 Q. Who was present?

A. Mr. Ballard, myself, and Mr. Shepherd. We went there for the purpose of notifying the Board of Public Works, through him, that we should hold the District of Columbia responsible for putting down in this District the wedge-shape blocks in any form, inasmuch as we held the patents that covered every form of it that was being used in pavements, and I think gave him the numbers of our patents.

Mr. Shepherd's answer was that, so far as that was concerned,

61 none of you will lay any pavements in this city without indemnifying the District against infringers; that is about the conversation as I remember it. I intend by this answer to say that I fully made known to Gov. Shepherd all that I went there to say on the subject of infringers.

9 Q. Please begin again and state what you said to Mr. Shepherd and the substance of the conversation, without reference to what you went there for.

A. I said to Mr. Shepherd that the Ballard Pavement Company were the owners of the wedge-shaped block and the pavement made from it, and that their patents covered that block in every form, and forbidding the use of the wedge-shaped block in the District of Columbia, and I think we gave him notice at that time of the number of our patents.

10 Q. What patents were they?

A. I mean the three patents offered in evidence here to-day in this case. Mr. Shepherd replied to that in substance that none of you will lay pavements in this city without giving the District

62 sufficient bond indemnifying against infringers.

11 Q. Was that all?

A. I think so. I have given, I think, what he said and what I said.

12 Q. To your knowledge, was any other notice than this given to the District authorities in reference to the matter of the infringement of these patents in evidence here?

A. I cannot swear positively that we served our printed form of notice, but I have no doubt that we did do it, from our practice. We had a printed circular containing the numbers of these patents, which was sent to all of the cities where wooden pavements were then being laid, and I think we sent quite a number of them to the Board of Public Works from time to time lest they should forget what we had done.

13 Q. What is the basis of your knowledge on that subject? You say you think we did this?

A. One fact, which is not so distinct as this conversation with Shepherd: One of the clerks in the office of the Board of Public Works, probably it was Secretary Johnson, alluded to the fact,
63 one day when I happened to be there, that we seemed to be making a fuss about the right of the District to lay several of the pavements they were then laying. That is my recollection. In some cases those notices were sent to the officers. That was very difficult to do. We sent them sometimes to the sheriff of the county and had them returned served upon the proper officers and the circular returned to our office in New York; but the more usual way, I think, was to send them to the engineers by mail. We had a great many struck off and sent a great many all over the country. As long as we were in the business we kept doing it to have no doubt about it.

14 Q. Have you one of the circulars?

A. I have not got one with me. I don't know whether Mr. Ballard has one (Mr. Ballard: No; I have not). We have them at home. I can get one.

15 Q. Whose business, if anybody's, was it to send these circulars forth?

A. I think Mr. Marsh use- to write the letters and use- to do it.

16 Q. Where is he now?

64 A. He is at Des Moines.

(Adjourned until April 11th, 1881, Monday, at seven o'clock p. m., by consent.)

ALBERT HARPER, *Examiner.*

65 WEDNESDAY, *April 13th*, 1881—7 'cl'k p. m.

Tallmadge E. Brown.

Cross-examination by Mr. MILLER:

1 Q. Mr. Brown, will you please state how this consideration for that assignment, "Exhibit H," was paid?

A. It was paid in money, nearly all of it.

2 Q. How much money?

A. Over forty thousand dollars in cash.

3 Q. To whom was it paid?

A. Paid to different banks about the country. I paid the notes of the Ballard Pavement Company.

4 Q. Have you those notes?

A. Yes, sir; I have them at home.

5 Q. Will you produce them?

A. Yes, sir; I can send for them.

6 Q. Will you state at what banks they were paid?

A. Yes, sir.

7 Q. What were they?

66 A. Well, different banks. If you like I will give you some of them, not all, perhaps. I paid thirteen thousand dollars to J. C. Starr, of Moline, Illinois; I don't remember how it is spelt. Of course, these names are not fresh in my memory; I have a list of them at home. I will say this, that after Mr. Allen's failure, who had endorsed for the Ballard Pavement Company and me, I went on to Chicago and at one time took up forty thousand dollars of the paper and gave my sight drafts on the mayor of Memphis for about forty thousand dollars.

8 Q. What was the name of the mayor?

A. At that time it was John Logue. I gave my drafts on the mayor of Memphis for about forty thousand dollars, alternated them, and they were all paid within six months from the time I took them up. I took up forty thousand dollars at one time.

9 Q. When was that?

A. That was after B. F. Allen's failure. I think he failed on the 19th of January, 1875—about January, 1875. I paid for the Ballard Pavement Company about that time about fifty thousand

67 dollars of their debts, which left the other members of the company largely behind and left my account from thirty to fifty thousand dollars ahead. I can't give particulars without looking at the books, but I can give you the names, a list of all the debts paid, to whom paid, and how much money, but I guess, in round numbers, that I paid about fifty thousand dollars in the year 1875 for the Ballard Pavement Company.

10 Q. And that was the consideration of this assignment (referring to "Exhibit H")?

A. It was.

11 Q. You speak of laying a pavement on R street in October, 1872; was that the first pavement you laid?

A. In this city; yes, sir.

12 Q. Do you know how long before you laid that pavement or whether it was before or after you laid that pavement that this conversation that is spoken of with Shepherd occurred?

A. That R-street pavement was laid in October, 1872, and this conversation was before that.

13 Q. How long before?

68 A. I would not undertake to say how long before, but it was before that.

14 Q. Well, was it a day, a week, or a month?

A. My impression is that it was three or six months before. I should have said quite early in 1872—late in 1871 or early in 1872, I should say the conversation was.

15 Q. You say you fix the date that it was in 1872 by the fact that you laid the first pavement here in 1872. How do you fix that date? You say that is what enables you to say it was 1872.

A. It was before that, I know. We were here trying to get contracts of Mr. Shepherd, or through him, and I know it was before we were here trying to secure contracts through Shepherd that we had this interview, and that was, I don't know how many months, before the R-street pavement was laid, but I know it was some time before.

16 Q. Your notification to Mr. Shepherd was against putting down in this District wedge-shaped blocks in any form?

A. It was; it was the same to him in substance that this printed circular is—"Exhibit L" in evidence here—and I won't
69 swear positively to it, but I think we gave Mr. Shepherd one of those printed circulars at that time. That is my best recollection. I have no doubt we did.

17 Q. What do you mean by you have no doubt you did; have you any recollection?

A. That is my best recollection.

18 Q. Have you any recollection?

A. I have. I went there for the purpose of giving Mr. Shepherd the notice embraced in that printed form—that circular. That circular, to my personal knowledge, had been gotten up before that interview with Shepherd. We got up those blanks and had them served in a great many places, and I went there with Mr. Ballard to see Mr. Shepherd, as the president of the Board of Public Works, with a view of giving him the same notice that we were giving cities generally. I don't remember positively of reading the notice to him, but I am very confident that I had one with me, and gave him one.

19 Q. Does that confidence arise from recollection of having one of those papers with you?

A. It arises from the motive that I had in going there to see him, coupled with the conversation that is very distinct in
70 my memory.

20 Q. Will you please give that conversation as near as you can in the language used?

A. We said to Mr. Shepherd that we controlled the wedge-shaped blocks in every form, and we forbid the use of it without our written consent or without our consent; that we should hold the District responsible for the use of our pavement, and I think gave him one of these printed circulars; I have no doubt I did. In answer to which Mr. Shepherd said that so far as that was concerned none of us would lay a pavement without giving the District good bonds against all claims for infringements.

21 Q. You say you have no doubt; you don't speak from recollection of having the circular?

A. Well, I went there for the purpose of giving the notice; we generally gave it in that way, and I have no doubt while there that I gave him one.

22 Q. Well, that is a matter of argument.

A. If you ask me the question you must take my answer. I won't swear positively that I gave him one, but I think I did; that
71 is my best recollection—that I gave him one.

23 Q. It was Mr. Marsh's business, you say, to send these circulars out?

A. No, I did *I* say that; I think Mr. Ballard was asked the question.

24 Q. (Reading from Mr. Brown's direct examination:) You say, "I think Mr. Marsh, who attended to the writing of the letters, used to do it." He was a member of the firm of the Ballard Pavement Company?

A. He was; yes, sir.

25 Q. Where was the Ballard Pavement Company organized, Mr. Brown, and when?

A. The Ballard Pavement Company was organized in New York, having its office at No. 117 Broadway, New York; it was organized about 1869 or 1870.

26 Q. Can you give the exact date?

A. I cannot here. I could by looking at our books. It was a private copartnership entered into by three of us, and, as I think more about it, I should put the date 1869 or 1870—1869, I guess.

27 Q. Was it a- incorporated company?

A. Not at all; it was a private copartnership.

28 Q. Then, it was you three gentlemen trading under the firm name of the Ballard Pavement Company?

72 A. Yes, sir.

29 Q. Were you here during the years that you sue for this infringement?

A. I was.

30 Q. All the time?

A. Not all the time, but I was here occasionally during the progress of the work by the Board of Public Works.

Redirect by Mr. WORTHINGTON:

31 Q. Are you able to give any further information than that you have already given in answer to the question by Mr. Miller in reference to the details of the pavements made by you for the Ballard Pavement Company as going to make up the consideration of the assignment marked "Exhibit H?" If so, please do it.

A. I will say generally that about the month of January, 1875, the Ballard Pavement Company had of paper with different banks and bankers and private individuals, mostly in Chicago, about fifty thousand dollars; that paper I took up; it was credited to me on the books, so that I paid on account of losses and debts for the
73 Ballard Pavement Company which was incurred largely by, as specified in the assignment, *by* the failure of the District of Columbia to perform its contract with the Ballard Pavement Company—that heavy loss I paid. About forty thousand dollars of the same was paid by me by sight drafts on John Logue, the mayor of

Memphis, in one-thousand-dollar drafts, the numbers of which & the payees of which all appear on my stub book, now in my safe at Des Moines, Iowa, and which I will produce if required. Those drafts have all been paid.

32 Q. How about the remainder of the fifty thousand dollars? That accounts for forty thousand dollars; what about the rest; how was that paid; do you recollect?

A. I don't recollect just at this time; only I know I paid their debts—paid or assumed them. There is one debt that has not been paid; I have not fully paid it, but I have assumed it and secured it.

33 Q. What is the amount of that debt?

A. Ten thousand dollars.

34 Q. What debt is that?

74 A. That is to John Arnot, Chicomangr Bank, Elmira, New York. I cut off my Memphis bonds coupons and assigned to him as collateral thirteen thousand dollars. Suit has been brought thereupon and part of the money collected and paid over to Mr. Arnot, who still holds the note and the coupons.

35 Q. What proportion has been paid you cannot tell?

A. No, sir.

36 Q. The claim against the city of Memphis to which you are referring has been, I believe, before the Supreme Court of the United States and is reported in one of the Supreme Court Reports, is it not?

A. Yes, sir.

37 Q. Can you give the volume of the report and the title of the case?

A. It seems to me it is sixth or eighth Otto.

38 Q. It is one of the Supreme Court Reports and is entitled City of Memphis *vs.* Brown?

A. Yes, sir. I obtained judgment against the city of Memphis for over four hundred thousand dollars, three hundred thousand dollars of which has been paid in cash, part of which was paid

75 on those drafts.

(Objected to by the counsel for defendant.)

T. E. BROWN.

Subscribed and sworn to before me this 15th day of April, 1881.

ALBERT HARPER, *Examiner.*

76 APRIL 8TH, 1881.

WILLIAM W. BALLARD, being produced as a witness on behalf of the complainant, of lawful age, and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

1 Q. What is your name, residence, age, and occupation?

A. William W. Ballard; Elmira, New York; sixty-two years of age; oil producer.

2 Q. Mr. Ballard, you are the gentleman of that name mentioned

in the patents, Nos. 94062 and 94063, put in evidence here to-day?

A. Yes, sir.

3 Q. Will you please, in the first place, look at this block marked "Model D," and state where it came from, if you know.

A. I am not positive whether it was Sixteenth or Eleventh street northwest, one of the two, in this city.

4 Q. How do you know that?

A. I saw it taken up from the street this afternoon.

5 Q. By whom?

A. John S. Baldwin.

6 Q. How do you know that is the same block?

77 A. I brought it here.

7 Q. Mr. Ballard, did you know Alexander R. Shepherd, who was at one time member of the Board of Public Works in this city?

A. I did, sir.

8 Q. In what years did you know him?

A. From 1871 to 1875, I think.

9 Q. In the lifetime of the Board of Public Works had you any interest in the three patents which have been offered in evidence in this case?

A. Yes, sir.

10 Q. In connection with that matter, did you have any conversation with Mr. Shepherd?

A. I did.

11 Q. When?

A. It was very soon after the Board of Public Works was formed.

12 Q. In what year, as near as you can specify?

A. 1871 or 1872.

13 Q. How long after the board was formed?

A. I am not able to say, but very soon, I think.

14 Q. Fix the time, as near as you can, Mr. Ballard. Very soon is very indefinite.

A. It was within a few months after the formation of the

78 Board of Public Works, I think, and before any wood pavement was laid in the District by authority of said board.

15 Q. What were Mr. Shepherd's relations to the board at that time?

A. Well, he was president or vice-president of the board.

16 Q. Where did this conversation occur—do you remember?

A. In his place of business, his store.

17 Q. And what was it?

A. He had some wedge-shaped blocks in the store that were placed there by some parties as a model to lay on the streets. I said to him that that was an infringement of our patents.

18 Q. Did you say to him what you meant by "our," or did you use the word "our" merely?

A. Ballard pavement patents.

19 Q. Who composed the Ballard Pavement Company?

A. It was Tallmadge E. Brown, Edward L. Marsh, and William W. Ballard.

20 Q. Was there any further conversation between you and Gov. Shepherd at that time on that subject?

A. I objected to the pavement being put down in the city without our consent.

79 21 Q. Did he make any reply?

A. And that we should hold the city responsible if they put it down. He said that the city would see to it that all parties putting down pavements should give ample bonds, or something to that effect.

22 Q. Did he say for what purpose he would see that they gave bonds?

A. To indemnify the city.

23 Q. Indemnify it against what?

A. Against infringements.

24 Q. Do you know as a matter of fact whether that was done—whether bonds of that kind were required of contractors?

A. They were; yes, sir.

25 Q. By the Board of Public Works?

A. Yes, sir.

26 Q. How do you know that, Mr. Ballard?

A. We gave them ourselves.

27 Q. You did some work yourself?

A. Yes, sir.

28 Q. Was there a form used or not?

A. I think there was a form.

29 Q. Printed form?

A. I think so.

30 Q. Was any person besides Gov. Shepherd and yourself present at this conversation?

A. Mr. Tallmadge E. Brown.

80 31 Q. Anybody else?

A. I do not recollect that there was.

32 Q. Mr. Ballard, did you at any other time between 1870 and 1875 have any communication with any of the District authorities in reference to objecting to any infringement of these patents or any of them?

A. Personally—by word of mouth?

33 Q. Any way.

A. We had printed forms with which we notified all cities where pavements were being laid, setting forth our different patents and forbidding it being laid in said cities.

34 Q. When you say "we" who do you mean?

A. The Ballard Pavement Company, composed of the persons I have named.

35 Q. Do you know whether or not a copy of that circular was sent to the authorities of the District of Columbia?

A. I did not personally send such notice, but I have no doubt it was served upon this city.

36 Q. What is your reason for that opinion?

A. Mr. Marsh was looking after that part of the business, and we

had conversations together to the effect that we should be
81 very particular in serving it upon all cities.

37 Q. Do you know of any circular of this kind being sent to any city by Mr. Marsh?

A. I am morally certain that a circular was sent to every city that laid wooden pavements.

38 Q. Please look at this "Exhibit H" and state whether your name there is your genuine signature.

A. That is mine, sir.

82 MONDAY, *April 11th*, 1881—7 'cl'k p. m.

Met pursuant to adjournment.

Present: Counsel for respective parties and the witnesses.

At the instance of Mr. Miller, of counsel for defendant, further adjournment is had until Wednesday, April 13th, 1881, at seven o'clock p. m.

WEDNESDAY, *April 13th*, 1881—7 'cl'k p. m.

Met pursuant to adjournment.

Present: Counsel for respective parties and the witnesses.

Direct examination of WILLIAM W. BALLARD continued.

By Mr. WORTHINGTON:

39 Q. Mr. Ballard, in your previous examination you referred to a circular which you said the Ballard Pavement Company had sent to various cities in reference to the company's rights in certain patented wooden pavements, did you not?

A. I did.

40 Q. Have you a copy of that circular with you to-night?

A. I have.

83 41 Q. Please produce it.

(Witness here produced a printed circular, which is offered in evidence by complainant's counsel, and the same is herewith filed in evidence and marked "Exhibit L."

Counsel for defendant objects to the admission of said circular in evidence because there is no proof that it was sent to District of Columbia.)

Cross-examination by Mr. MILLER:

1 Q. When did you come to the city of Washington, Mr. Ballard?

A. I came in about 1870.

2 Q. Had you got your patents then?

A. Well, I really don't recollect the dates; they were issued before I came on.

3 Q. How long were they issued before you came on?

A. Two of them were issued (witness examining patents) the 24th of August, 1869.

4 Q. Those are your two patents?

A. Yes, sir.

5 Q. You speak of having had a conversation with Mr. Shepherd. Was that when he was Governor or when he was a member of the Board of Public Works?

84 A. Member of the Board of Public Works.

6 Q. Before he was Governor?

A. Yes, sir.

7 Q. Will you please state that conversation, as near as you can, in the language that was used between you and Mr. Shepherd?

A. We stepped into his office.

8 Q. Who?

A. Mr. Brown and myself. Mr. Shepherd had on exhibition at his office some wedge-shape blocks that had been left there with him, I think, by parties who wanted to put pavements down upon streets of the city.

Mr. MILLER: I will have to ask you, Mr. Ballard, to testify to things you know. You cannot testify to that unless the parties were present and told you what those blocks were for.

WITNESS: They were wedge-shaped blocks, and Mr. Brown and myself said to him that our patents covered the wedge-shaped blocks and wedge-shaped spaces, and if they were to be put down in the city we should hold the city responsible, and we forbid them

85 putting any of those pavements on the streets of the District.

9 Q. Do you mean to say that your patent was the only one that had been issued at that time for wedge-shaped blocks?

A. Yes, sir.

10 Q. Of any kind?

A. These patents in this case were the only ones that had been issued. Mr. Shepherd replied that there would be no pavements put down by any parties in the District without the parties giving ample bonds to the District indemnifying it against infringements.

11 Q. You say you knew such bonds had been given; how do you know it?

A. We gave them in contracts that we took in this city by the Board of Public Works.

12 Q. Do you know any others that ever gave such bonds?

A. I do not know personally; I understood, though——

13 Q. I mean of your own knowledge.

A. No; not of my own knowledge.

14 Q. Did you ever go on anybody else's bond yourself?

A. I don't recollect.

15 Q. Don't know whether you did or not?

86 A. No, sir.

16 Q. Do you know whether the Miller and Mason patent was for wedge-shaped blocks or not?

(Counsel for complainant objects to question because the patent will speak for itself, and, further, because this is not cross-examination.)

A. I think it was not, sir.

17 Q. The Henry N. Stone patent—do you know whether that was for wedge-shaped blocks or not?

(Counsel for complainant repeats objection.)

A. I think not, sir.

18 Q. Do you know whether the H. L. Cranford patent was for wedge-shaped blocks or not?

(Counsel for complainant repeats objection.)

A. I don't know what the patent is, sir.

19 Q. Then you are not informed certainly whether there were patents for wedge-shaped blocks issued before yours?

A. The Patent Office disclosed nothing of that kind, as far as my attorneys and myself discovered.

20 Q. Have you related all the conversation with Gov. Shepherd?

A. I think what I have said covers all.

87 21 Q. Do I understand you to say that you have no personal knowledge of the sending of circulars?

A. I have no personal knowledge of their being sent to this city, but I know they were sent all over the country, to all cities where the pavements were being laid. That was our habit of sending them, to all cities.

22 Q. You say, "I am morally certain that a circular was sent to every city that laid wooden pavements." What do you mean by "morally certain?"

A. I mean I am as certain as of anything that I did not personally do myself that our office sent those circulars to all cities where they were laying wooden pavements.

23 Q. Was this fifty thousand dollars of indebtedness that is referred to in "Exhibit H" the only consideration for the execution of the paper?

A. That is the consideration.

24 Q. Do you know how much was paid by Mr. Brown?

A. It was all paid except what he assumed to pay.

25 Q. How much did he pay and how much did he assume?

88 A. He paid nearly the whole of it, and I don't know but the whole is paid now.

26 Q. And was this assignment the only consideration for that payment?

A. Yes, sir.

27 Q. What do you refer to here as the "assets" of the Ballard Pavement Company?

(Counsel for complainant objects to the question so far as it seeks to vary the natural import of the word.)

A. This claim is one of the assets.

28 Q. But it speaks here (referring to "Exhibit H") of assets, claims, &c.; what I want to know is what you refer to there when you speak of assets.

(Counsel for complainant objects to the question so far as it seeks to vary the natural import of the word.)

A. Well, they consist chiefly in claims for royalty and this claim.

29 Q. Then the assets were (reading from "Exhibit H") claims, contracts, suits brought and to be brought, claims for royalty and damages for infringements of patents, damages for breaches of contract, balances due for work and labor performed, differences between the market value of certificates received by said company and the face value thereof, and any and all other rights, equities, and causes of action against any and all parties whomsoever; that is what you mean by the assets?

89

(Counsel for complainant objects to the question so far as it seeks to vary the natural import of the word.)

A. Yes, sir.

30 Q. So there was no other consideration, I understood you to say?

A. I don't think of any now, sir.

31 Q. You claim no interest in the result of this suit whatever?

A. No, sir.

32 Q. In any way?

A. I expect, prehaps, to get a consideration for my services.

33 Q. Well, by your services you mean your testimony in this case?

A. Yes, sir; my travelling and all that kind of thing connected with the suit.

34 Q. Have you any — relation to the case than that of a witness?

A. As I have said, I expect, prehaps, I shall have a consideration; I don't know that I shall.

35 Q. What kind of consideration?

A. For my services only.

36 Q. What services?

90 A. Putting in time and travelling in the case.

37 Q. Are you expected to perform any other services than those of a witness?

A. Anything that I am called upon that I know of the matters in the case I expect to give my services.

38 Q. Have you any agreement or contract or arrangement with Mr. Brown in regard to any compensation for these services?

A. Yes, sir; I have.

39 Q. What is the nature of that contract?

A. I don't know just what it is now.

40 Q. Is it in writing or is it verbal?

A. It is in writing.

41 Q. I request production of that writing.

A. I have not got it here. I think it is in Elmira.

42 Q. This patent, "Exhibit G," is a patent for method of cutting blocks, is it not?

A. Yes, sir.

43 Q. I wish to know, Mr. Ballard, whether you have any knowledge that the District of Columbia used that machinery.

A. I know that it was used in the District of Columbia.

91 44 Q. Do you know whether the District of Columbia, by any of its agents, ever used that machine in any shape or form?

A. I am not able to say whether they did or not.

45 Q. Had any wooden pavements been laid prior to the issue of these patents (referring to patents filed in this case by complainant), of your own knowledge?

(Counsel for complainant objects to this line of examination as not being cross-examination, and the counsel for the District is notified that the answers of the witness on this point will be used as evidence against the District as evidence of its own witness.)

A. Do you mean the United States?

46 Q. In the United States.

A. Yes, sir.

47 Q. Do you know how long before the issuing of these patents (referring to the patents filed in this case by complainant) wooden pavements had been laid?

A. I do not, sir.

48 Q. Have you any approximate idea?

A. Thirty or forty years.

49 Q. At the time you had this conversation with Mr. Shepherd was there any one else present?

A. Mr. Brown, Mr. Shepherd, and myself.

92 50 Q. Those were the only ones?

A. I don't recollect of any one else being present.

51 Q. To the best of your knowledge, there was no else present?

A. No, sir. We went there in purpose to notify him.

Redirect by Mr. WORTHINGTON:

52 Q. Mr. Ballard, when you speak of a wedge-shaped block what do you mean?

A. I mean broader at the bottom and narrower at the top.

53 Q. State whether or not you mean coming up to a point at the top or the shape of the blocks there (referring to models B & C).

A. Yes; the shape of the models B & C; and they stand in the street with the large, broad part down.

93 In consideration of one dollar to me in hand paid by W. W. Ballard, of Elmira, New York, the receipt of which is hereby acknowledged, and for other valuable consideration, I hereby sell and assign to said Ballard Pavement Co. business in all assets growing out of the same, in suits brought and that may be brought; and after the debts of the company shall have been fully paid by said business and assets and said Ballard's individual account with said company provided for from his interest or otherwise he shall

then receive said two-fifths of the net avails of said business as realized, said two-fifths being the extent of said Ballard's interest.

Dated Des Moines, Iowa, this 18th day of Dec., A. D. 1880.

(Signed) T. E. BROWN.

Attest:

(Signed) E. L. MARSH.

In Supreme Court Dist. of Columbia.

BROWN
vs.
D. C. } Eq. No. 7239.

It is agreed that the above is a true copy of the agreement referred to by the witness Ballard in his cross-examination in this case, and that it may be filed in evidence on behalf of the defendant instead of the original.

7 Ap'l, '82.

A. S. WORTHINGTON,
Solicitor for Compl't.
FRANCIS MILLER,
Sol'r for Dist. of Col'a.

94 DANIEL N. ROW, a witness produced on behalf of complainant, being of lawful age and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

1 Q. What is your name, residence, age, and occupation?

A. Daniel N. Row; Washington, D. C.; thirty-five years of age; lumberman.

2 Q. How long have you lived in the District?

A. Since 1865.

3 Q. Have you had anything to do with the laying of wooden pavements in this city?

A. I have been superintending the manufacture of some of the blocks, and saw them laying them in pavements on the streets.

4 Q. When were you engaged in the manufacture of blocks for the purpose of laying them in pavements on the streets?

A. 1872 or '73, or probably both years.

5 Q. For whom were you so engaged?

A. Well, I was first employed by Daniel W. Smith, and
95 then Zephaniah Jones had the contract for a lot of creditors; then I was employed by Mr. Jones, and Mr. Smith then done the cutting of the blocks.

6 Q. For whom were they laying the pavement?

A. Jones was laying the payment for the Board of Public Works.

7 Q. And for whom did Smith cut the blocks?

A. He cut them for Jones after Jones got the trusteeship, but Smith had an interest in the same contract that Jones was acting trustee in, and I superintended the cutting of these blocks.

8 Q. For what purpose were those blocks intended?

A. They were intended for street paving.

9 Q. Who was having them put on the street?

A. The Board of Public Works was having them put on and Zephaniah Jones was putting them on.

10 Q. Do you know on what streets the blocks were laid?

A. I saw them laid on New Jersey avenue northwest from, I think, D up to O street.

11 Q. How do you know they were put down there?

96 A. Because I saw them loaded in the wagon and saw the wagon dump them there and was there to see that they put them in the pavement.

12 Q. Please describe these blocks which you say you helped to manufacture.

A. They were made out of seven-inch timber; the seven-inch timber ran up to a cross-cut saw, slanting, that gave the block there a bevel; then the slitting saws were also set on a table with a bevel. You may say the blocks were sawed—split slanting through one piece would then make two blocks. I sawed off a seven-inch timber and in that way would make two blocks, the base of which would be four inches while the top would be three inches, leaving an opening when put together of about an inch or little over.

13 Q. Describe more particularly the shape of the blocks.

A. The block was five inches high, three inches at the top, and four inches at the base.

14 Q. And how long?

A. Five inches high—might be any length, from four to twelve inches long.

97 15 Q. Describe, please, more particularly in what manner these blocks were laid in forming the pavement on New Jersey avenue.

A. On New Jersey avenue the street was graded and a small coating of sand put on top, and then the blocks were laid on the sand.

16 Q. Which end down?

A. The four-inch end down; then the first process was putting in gravel, ram-ing the gravel and putting in tar, pitch, asphalt, or something of that nature into the cracks, and then putting sand on top.

17 Q. What was the shape of this interstice which you call a crack?

A. It was an opening left purposely to put this stuff in.

18 Q. Was it the same size at the top and bottom?

A. The blocks lay entirely close at the bottom; each block come right close at the bottom and left an opening at the top.

19 Q. What was the shape of that opening between the blocks?

A. It was wedge shape; it was wider at the top than at the bottom.

98 20 Q. Were the blocks laid down with regularity or otherwise; in what direction, if any, did the wedge-shape crevice between the blocks run?

A. They run across the street.

21 Q. The blocks were, then, in regular rows across the street?

A. Yes, sir.

22 Q. Now, please, look at figure two on "Exhibit I," and at the explanations below figure two, and state whether or not that drawing correctly represents the manner in which you saw the blocks cut which were afterwards laid on New Jersey avenue.

A. Yes; I think it does.

23 Q. Have you any doubt about it?

A. I have no doubt about it; I understand it.

24 Q. After the blocks were cut off from the stick of timber, as shown by figure 2 there, what was done with the blocks so cut off?

A. They were then sawed off, slanting, to give them a wedge shape.

25 Q. Sawed off into how many pieces?

A. Two pieces; made two blocks out of each one of them.

99 26 Q. State whether figure one correctly represents the manner in which you so made two blocks out of each.

A. Yes, sir; the lettering "*d b a*" represent the cutting of one or slitting of one of these blocks to make two of these blocks to lay on the street.

27 Q. Please look at this block which I now hand you and state what it represents.

(Witness takes a block of wood.)

A. I can't tell what it represents. It is a stick of wood; it is a model in shape.

28 Q. What does it represent with reference to the black lines marked on it? What does it represent then?

A. The black lines running around the block represent the saw cutting the block in pieces with a bevel; the lines running through the top and at the edges represent the slitting by the saw of the block, and making four inches at one end and three inches at the other and making two blocks out of it, while reversing one

100 block you have two blocks setting on the base four inches at the bottom and three inches at the top, being one inch less at the top.

(The block which the witness has just had in his hand and which he has just described is here offered in evidence by the complainant's counsel, and the same is herewith filed in evidence and marked "model A.")

29 Q. How does that model, as you have explained it, compare with the work that was actually done by you in 1872?

A. That is a correct representation.

30 Q. Please look at these blocks (witness takes two small blocks of wood from counsel) and state how they compare in configuration with the blocks which you say you saw laid on New Jersey avenue as you have mentioned.

A. They are exactly the shape.

31 Q. Do they compare with those in respect to the way the grain of the timber runs on the block, if you know?

A. I could not state as to the grain.

101 32 Q. In what respect, if any, do these blocks differ from those laid on New Jersey avenue in 1872, except in size?

A. No difference, except in size.

(The two smaller blocks of wood which the witness has just had in his hand, and concerning which he has just testified, are here offered in evidence by complainant's counsel, and the same are herewith filed in evidence and marked, respectively, "model B" and "model C.")

102 WEDNESDAY, *April 13th*, 1881—7 'cl'k p. m.

Daniel N. Row.

Cross-examination by Mr. MILLER:

1 Q. I understand from your testimony that you were first engaged in cutting the blocks and afterwards in laying them?

A. Yes, sir; superintending the cutting, but not much of the laying. I was on the street when they were laid—part of the time.

2 Q. And when did you first begin the cutting of these blocks?

A. I think it was 1872 or '73.

3 Q. Can't you tell when?

A. I can't tell positively; it might have been parts of both of those years.

4 Q. And for Mr. Smith and Mr. Zephaniah Jones?

A. Yes, sir.

5 Q. Did you have any conversation with Mr. Smith or Mr. Jones as to what patent they were laying these pavements under?

A. No, sir; I had not; but it was known or spoken of as the Ballard or wedge block.

103 6 Q. You didn't hear them say what patent they were operating under?

A. No, sir. They cut two blocks—one square off—right straight off, and that was known as six-inch block, six inches long and three inches thick, set up, while the other block was spoken of as the Ballard wedge block.

7 Q. What was the shape of the other block?

A. The other block was sawed straight, of three-inch timber.

8 Q. What was the shape of the block?

A. Six inches long and three inches thick, and the width of the timber it was sawed off of.

9 Q. They were rectangular blocks?

A. I don't understand what you mean. Suppose a plank was twelve inches wide, three inches thick, and six inches high; you saw off a plank six inches in length, that piece to be six inches high, and when set up on the street three inches at the base, and it would be twelve inches long on the street and the same shape, and the opening at the top would be the same as at the bottom.

10 Q. And they were laying both kinds of pavement?
104 A. They laid portion of each kind; I should suppose about four-fifths of this kind; I mean the wedge-shaped blocks. The lumber was principally all seven inches.
11 Q. Did you see any of the Miller blocks laid?
A. Not to know it by that name.
12 Q. Ever see any of the Stover blocks laid?
A. I don't know.
13 Q. You don't know any of these patents?
A. No, sir; nothing about the patents. I only know about the blocks.
14 Q. You know the shape of the blocks?
A. Yes, sir; I know the shape of them.
15 Q. Do you know where the machinery was *was* from by which you sawed these blocks?
A. I do not, sir.
16 Q. Do you know who owned it?
A. N. C. Draper & Co., I think.
17 Q. And where were the blocks cut?
A. Foot of South Capitol street, Bartholow's wharf.
18 Q. Will you describe exactly how you cut these blocks by the machinery?
A. Well, there were three saws that cut the stick of timber off, the timber being put to the saws slanting to cut the blocks
105 off slanting, and then there were two slitting saws; a block was put to one of those saws slanting and shoved through.
19 Q. How long were you employed in this business, Mr. Row?
A. I was employed in the business until after the Board of Public Works refused to allow Mr. Jones to go on and finish his contract.
20 Q. Do you know when that was?
A. I think that was in the fall of 1874.
21 Q. Was it in the fall; are you sure?
A. I think it was in the fall.
22 Q. How long were you engaged in this business?
A. From the time the thing first arrived until (Mr. Miller interrupting)——
23 Q. How many months?
A. I should suppose all of 1873 and nearly all of 1874. I could not be positive.
24 Q. You were there, then, nearly two years?
A. I think I was there probably more than two years.
25 Q. Were you constantly engaged?
A. I was there in charge of the lumber and when they made the blocks I was there superintending the making of them. The machinery didn't run constantly.
106 26 Q. You don't know exactly when you commenced?
A. No, sir; I could not say exactly as to the time.

Redirect by Mr. WORTHINGTON:

1 Q. You say you don't remember when it was you commenced

work—you commenced cutting the blocks. Can you tell whether it was before or after the Board of Public Works was created?

A. It was after the Board of Public Works was created.

2 Q. What do you mean when you speak of a wedge-shaped block or wedge block?

A. I mean a block that is wider on one side than it is on the other side.

3 Q. Do you mean that the blocks come to an edge like an axe?

A. Little like an axe, but not with an edge quite so sharp.

DANIEL N. ROW.

Subscribed and sworn to before me this 20th day of April, A. D. 1881.

ALBERT HARPER, *Examiner.*

107 APRIL 8TH, 1881.

JOHN S. BALDWIN, being produced as a witness on behalf of complainant, of lawful age, and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

1 Q. What is your name, residence, age, and occupation?

A. John S. Baldwin; Washington, D. C.; fifty-four years of age; contractor.

2 Q. Have you had anything to do with the laying of pavements in this city?

A. Yes, sir.

3 Q. When?

A. From the fall of 1870 until the present time.

4 Q. In what capacity, Mr. Baldwin, have you been connected with the laying of pavements in this city?

A. I have been in a great measure as subcontractor.

5 Q. I refer especially to wooden pavements; have you had anything to do with those?

A. Yes, sir; largely.

6 Q. What was the shape of the blocks used in laying the wooden pavements with which you were connected?

108 A. A large proportion was wedge-shape blocks.

7 Q. Give us the general dimensions and shape of those blocks.

A. Some of them were six-inches blocks—that is, six inches high. The first block I laid was six inches high and the balance of them was five inches, three and a half inches at bottom and two and a half inches at the top, and some, I think, were four inches at the bottom and three inches at the top.

8 Q. Describe the manner in which they were laid so as to form a pavement.

A. They were laid side by side, and would leave a vacuum for filling up with gravel and cement.

9 Q. What was the shape of that vacuum?

A. Wedge shape.

10 Q. Where was the base of the wedge and where the edge?

A. It run from three and a half to four inches from the top of the block.

11 Q. Tell us where and when the first pavement composed of wedge-shaped blocks such as you have described was laid.

A. On Pennsylvania avenue, from Ninth street west to the Capitol, in the fall of 1870.

109 12 Q. Did you assist in laying that?

A. Yes, sir.

13 Q. As subcontractor?

A. Yes, sir.

14 Q. Who was the contractor?

A. I was not subcontractor, but had an interest in the contract at that time.

15 Q. Who were your associate contractors?

A. The contract was given to the Metropolitan Paving Company.

16 Q. With whom was the contract made?

A. Lewis Clephane was president of the company.

17 Q. For whom was this pavement laid; by what authority, whether of the United States or of private parties?

A. It was laid under a special act of Congress authorizing the commissioners to select a pavement to lay on Pennsylvania avenue and also on M street.

18 Q. Who were those commissioners?

A. Gen'l Michler and Mr. Emory, at that time mayor. I don't recollect who the other commissioners were.

19 Q. Under whose direction was the work done as it proceeded?

A. By the commissioners, who superintended and directed

110 it; they had superintendence of the work.

20 Q. Was that the only pavement of the character you have described that was laid before the Board of Public Works was created, so far as you know?

A. I think Louisiana avenue was laid before the Board of Public Works.

21 Q. After the Board of Public Works was created was any pavement such as you have described laid in this city?

A. Yes, sir.

22 Q. Where?

A. On Eleventh street from F to O street- northwest.

23 Q. Where else?

A. It was laid on Sixteenth street from H to Boundary streets northwest.

24 Q. In what year were these pavements laid—these two on Eleventh and Sixteenth streets?

A. In '72 or '73, I think; it was either '72 or '73.

25 Q. What had you to do with the laying of them?

A. I laid Eleventh street for Filbert & Taylor.

26 Q. And whom were they working for?

A. They had the contract entirely in their own name.

111 27 Q. With whom?

A. The Board of Public Works.

28 Q. And as to the Sixteenth-street work?
A. They done that themselves.
29 Q. Who did?
A. Filbert & Taylor.
30 Q. For whom?
A. For the Board of Public Works.
31 Q. Do you know whether or not the District authorities superintended this work as it went on and directed it?
A. They did.
32 Q. Was the work on Eleventh street and Sixteenth street that you refer to done in the same way as that which you have described on Pennsylvania avenue?
A. Yes, sir.
33 Q. What kind of foundation was used on Eleventh street?
A. Board foundation.
34 Q. What kind of foundation on Sixteenth street?
A. Board.
35 Q. And on the avenue?
A. Board.

112 36 Q. Do you know whether or not any pavement of this character was used when there was not a board foundation used?

A. I do not know any of that character. It has been so long since that I have forgotten.
37 Q. Do you know by whom the blocks which you have referred to as wedged-shaped blocks were manufactured?
A. I do not.
38 Q. Did you see any such blocks made here or hereabouts at that time?
A. Yes, sir.
39 Q. Where?
A. Down here at the depot.
40 Q. What depot?
A. Baltimore and Ohio.
41 Q. And when?
A. In 1870 or 1871.
42 Q. What time in 1871?
A. In the spring of 1871.
43 Q. At any other period?
A. Not there.
44 Q. Where were they made after that?
A. That was the only place I saw the blocks made.
45 Q. Please tell us in your own way how those blocks were made—what was the process?

113 A. Six and seven inch planks in thickness were used; those were sawed off with a bevel and then they were put to a saw, and that left them in a wedge shape.

46 Q. Have you a drawing there which will illustrate that subject any more clearly?
A. Yes, sir (witness referring to the paper in his hand and

which is herewith filed in evidence by the counsel for complainant and marked "Exhibit I").

47 Q. Which of those figures on that paper illustrates the manner in which these blocks were cut from the timber?

A. Figure one represents the block.

114 WEDNESDAY, *April 13th*, 1881—7 'cl'k p. m.

John S. Baldwin.

Direct examination continued.

By Mr. WORTHINGTON:

48 Q. Please look at this exhibit, "model D," and state whether you have seen it before; and, if so, where?

A. Yes; on Sixteenth street.

49 Q. Did you take it up from the pavement on Sixteenth street?

A. Yes.

50 Q. When?

A. Last Thursday, I think it was; a few days ago.

51 Q. And gave it to whom?

A. Mr. Ballard.

52 Q. Can you tell us whether or not this is one of the blocks which you have testified were put down on Sixteenth street by the Board of Public Works?

A. Yes, sir.

Cross-examination by Mr. MILLER:

1 Q. In speaking of the shape of these blocks the question is asked you, Where was the base of the wedge and where
115 the edge? and you answer, It runs from three and a half to four inches from the top of the block. Do you mean that the inclination was three and a half to four inches from the top?

A. It commenced at the bottom of the block, but some of the blocks was different shaped.

2 Q. What do you mean here (referring to witness' direct examination)? You say it ran from three and a half to four inches from the top. Do you mean that the piece that was cut off ran from three and half to four inches?

A. The wedge commenced from the bottom of the block and ran four inches at the bottom and ran from three to three and a half inches at the top.

3 Q. Do you mean to say it was shaped like this (showing witness "model C")?

A. Yes, sir.

4 Q. All of them?

A. No, sir; not all of them; good many of the blocks were imperfectly sawed.

5 Q. You speak of a pavement laid in the fall of 1870 on Pennsylvania avenue. What kind of blocks was that pavement laid with?

116 A. They were called the Miller block.

6 Q. What was the shape?

A. Shape of them (referring to "models B & C"), or nearly so; they were four inches at the bottom and three inches at the top.

7 Q. You say you were subcontractor under that work?

A. Yes, sir.

8 Q. And did part of it?

A. Yes, sir.

9 Q. Do you remember when you commenced to lay that pavement?

A. Fall of 1870.

10 Q. You don't know what time in the fall?

A. Yes, sir; we commenced in November.

11 Q. In regard to Louisiana avenue, do you know what blocks were used in laying that pavement?

A. Called the Ballard block.

12 Q. When was that laid?

A. That was either '70 or '72; I could not tell exactly.

13 Q. Was it laid before or after the Board of Public Works was created?

A. Well, that I don't distinctly remember. I think it was before; I cannot tell; I think it was after the Board of Public Works.

117 14 Q. Do you know what authority laid that pavement?

WITNESS: On Pennsylvania avenue?

Mr. MILLER: No; on Louisiana avenue.

A. No; I could not tell.

15 Q. The question is asked you here (referring to witness' direct examination), "After the Board of Public Works was created was any pavement such as you have described laid in this city?" and you go on and say, "Yes, sir." What do you mean by that, as to the character of the pavement or kind of pavement?

A. I laid this same pavement on Eleventh street.

16 Q. Do you mean the Miller pavement?

A. No, sir.

17 Q. You have spoken of two kinds of wedge-shaped blocks—the Miller and Ballard blocks?

A. Yes, sir.

18 Q. You have spoken of several different streets. Do you mean to say whether they were laid in Ballard or Miller block?

A. They were all wedge-shaped blocks, but they were differently cut. Now, there is a block that is a little different from this block (pointing to "model D").

118 19 Q. What kind of block is that?

A. That is wedge-shaped; I can't tell whose patent it is.

20 Q. Is it Miller or Ballard, or what?

A. I could not tell you.

21 Q. You could not tell by the shape?

A. No, sir.

22 Q. Do you know whether Filbert & Taylor had any patent or not?

A. I don't.

23 Q. Do you know what patent pavement it was that they laid?
A. I do not know what the patent was; it was a wedge-shaped block.
24 Q. You don't know what patent it was?
A. No, sir.
25 Q. When you saw one of these pavements laid could you tell one from the other?
A. Yes, sir; I could tell; there was a wedge shape, and then there was a block cut with a groove in——
26 Q. But I mean to look at the pavement or to look at the block.
A. Yes; I could tell.
27 Q. Which is this (pointing to "model D")?
A. I could not tell you which that is.

28 Q. You say here (referring to the direct examination of
119 witness) that the work on Eleventh and Sixteenth streets was done in the same way that you have described on Pennsylvania avenue. These pavements are the same in character?
A. Yes, sir.
29 Q. Do you know anything about the Cowing patent?
A. Yes, sir.
30 Q. Did you ever know any pavement to be laid by the Cowing patent?
A. No, sir.
31 Q. You never knew any of these blocks to be made in the District after the spring of 1871, I understand you to say?
A. No; I never.
32 Q. Do you know anything about the machinery by which the blocks were made?
A. No, sir.
33 Q. Do you know how many different kinds of wedge-shaped blocks were used in the District?
A. I do not.
34 Q. Do you — what different patents of wedge-shaped blocks were used?

(Counsel for complainant objects as improper and not cross-examination.)

A. Well, there were the Miller block and the Ballard block,
120 and I think there was a Filbert and Taylor block, but I won't be sure.
35 Q. Was there any Stover patent?

(Counsel for complainant objects as improper and not cross-examination.)

A. Stover was a straight block.

Redirect by Mr. WORTHINGTON:

1 Q. Mr. Baldwin, I want to ask you to state what is the difference between what you have called the Miller block and what you have called the Ballard block.

A. Well, the Ballard block has a groove and one block fits into the other and leaves a wedge shape at the top.

Mr. MILLER: Please take my pencil and make a drawing.

(Witness makes a drawing and hands it to the examiner, who files it herewith in evidence and marks the same "Exhibit M.")

2 Q. Mr. Baldwin, what proportion of the blocks that were laid in the pavement here to your knowledge were of the shape of the drawing which you have just made?

A. I could not tell you.

3 Q. Was it large or small in proportion to the whole?

121 WITNESS: Do you mean the Ballard block?

Mr. WORTHINGTON: I mean the block which you have just been drawing.

A. Small proportion of that.

4 Q. In how many places were they laid, to your knowledge?

WITNESS: The Ballard block?

Mr. WORTHINGTON: The block which you have just drawn.

A. On Louisiana avenue and Indiana avenue; the only places I know of.

5 Q. Now, you have not told us yet what you mean by the Miller block?

A. The Miller block is a wedge-shaped block, four inches at the bottom and three at the top.

6 Q. Do you see anything among these models here which looks like it?

A. This looks a little like it (pointing to "model C").

7 Q. Do I understand you to say that the wedge-shaped block which was generally laid here was of that shape?

A. Yes.

8 Q. Mr. Baldwin, when you call it the Miller block do you mean to express any opinion as to whether it is covered by Mr. Miller's patent or Mr. Ballard's patent or by anybody else's patent?

122 A. I do not.

Recross by Mr. MILLER:

9 Q. Can you see any difference between this block and the Miller block (showing witness "model C")?

A. Well, I think there is a difference.

10 Q. Please point it out.

A. I don't see but very little difference, either; I see but very little difference; I think there was not quite as much level on the Miller block as there is on this block.

11 Q. And you say you can't tell whether that is the Miller or Ballard or Filbert or what patent it is from examination of it (showing "model D" to witness)?

A. I think that is what they call the Taylor and Filbert patent.

(Counsel for complainant objects to this line of examination as not being cross-examination and referring to patents which are not in evidence.)

JOHN S. BALDWIN,
By ALBERT HARPER, *Examiner.*

123 WILLIAM W. BALLARD recalled.

Direct examination by Mr. WORTHINGTON:

1 Q. Mr. Ballard, have you heard the cross-examination of the witness Baldwin, just concluded?

A. I have.

2 Q. Have you looked at "Exhibit M," filed with his testimony?

A. Yes, sir.

3 Q. Were the blocks represented by that cut patented, to your knowledge?

A. They are, sir.

4 Q. Do you know the number of the patent and in whose favor it was issued?

A. I have not the patent here; I think it is No. 99391.

5 Q. Is it a patent that is involved in this suit at all?

A. Not at all.

6 Q. Who controlled it from 1870 to 1875?

(Objected to by counsel for defendant.)

A. The Ballard Pavement Company.

(Cross-examination waived.)

W. W. BALLARD.

Subscribed & sworn to before me this 15th day of April, 1881.
ALBERT HARPER, *Examiner.*

124 APRIL 8TH, 1881.

WILLIAM C. MCINTIRE, being produced as a witness on behalf of the complainant, of lawful age, and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

1 Q. What is your name, residence, age, and occupation?

A. William C. McIntire; Washington, D. C.; thirty-nine years of age; patent attorney and mechanical expert.

2 Q. How long have you been so engaged, Mr. McIntire?

A. About twenty-five years as patent attorney, and for the last ten years as mechanical expert in addition.

3 Q. Will you please state whether you have had any special opportunity of investigating the subject of patents relating to wooden pavements?

A. I have, sir. During the period of the wooden-pavement furore, eight or ten years ago, I took out quite a number of patents for various people, and had occasion to make frequent and exten-

sive examinations in the Patent Office as to the character of
125 those patents which had been issued to other parties as compared with those which I was seeking to obtain, and made myself acquainted very extensively with the subject of wooden pavements. I have had very little to do with it since that time.

4 Q. Have you read and do you understand the letters patent of the United States which have been offered in evidence here to-day in this case in your presence, being patents No. 101,590, No. 94062, and No. 94063?

A. I have not read them to-day, not being aware that I would be called upon to testify to them. My recollection is a matter of remembrance only.

(The examination is here suspended until the witness examines the said letters patent.)

The witness, resuming, says: I have finished reading the letters patent, and am prepared to further testify in relation thereto.

5 Q. Have you heard the testimony of the witnesses Baldwin and Row, who were examined here this morning?

126 A. Yes, sir; I heard them both testify.

6 Q. State whether you have examined the models offered in evidence here this morning, marked, respectively, "models A, B, and C."

A. I have, sir.

7 Q. Now, please compare the pavements which the witnesses have testified were laid in this city with the patents referred to; first as to the Cowing patent No. 101,590.

A. Understanding the pavements described by the witnesses, I should say that they involve necessarily the construction shown in the Cowing patent in so far as the wedge-shape spaces between the blocks are concerned for the reception of the concrete material, gravel, asphalt, &c. The witnesses have described these spaces as traversing the street from side to side in a direct line. In the Cowing patent they are so arranged as to break joints; but this is not an essential feature of the Cowing patent. The Cowing patent shows and describes several peculiarities of construction of the block it-
127 self, consisting, first, of a block having one plain or vertical side and its opposite side oblique, so that when laid in contact with a plain or vertical side of an adjacent block a right-angle wedge space would ensue. Another form is a single block having each of its sides oblique to the base and top, so that when two such blocks were laid adjacent the space would be a perfect double wedge. A third illustration of the patent represents two of the blocks in which a single side is cut away obliquely, arranged with their vertical sides adjacent, so that when four of such blocks so arranged are laid to form a pavement a space would be a double wedge, substantially the same as a single block having its two sides cut obliquely to its base and top. The patent itself describes these various constructions as interchangeable, so that the scope of the patent would necessarily comprehend any one or all of them, in my judgment.

8 Q. Now, as to the Ballard and Waddell patent, No. 94063, for

improved method of cutting blocks for wood pavements;
128 please compare that patent with the mode of cutting blocks described by the witness Row in his testimony in this case.

A. The patent referred to shows and describes precisely the method described by the witness Row.

9 Q. Please look at the "models A, B, and C" in evidence and compare them with the two patents, Nos. 101,590 and 94063, and state whether or not they represent the blocks and the method covered by those patents, respectively.

A. "Model A" clearly illustrates the method of cutting the wedge blocks covered by the patent of Ballard and Waddell, No. 94063, and the two smaller blocks, "models B and C," illustrate clearly the wedge-shape blocks formed by the splitting of one of the blocks indicated by the circumferential lines on "model A."

10 Q. What are the advantages of cutting blocks in the mode described in the patent No. 94063?

A. In the first place, the method involves the saving of material, inasmuch as the only waste occurring in a piece of timber of
129 any given length is a wedge-shape piece at each end of the timber, no waste occurring in the formation of the oblique sides of the individual blocks, because those sides are formed by splitting at a line oblique to the two parallel sides of the first cut made from the timber; whereas in the usual method of forming wedge-shaped blocks the oblique sides were formed by cutting a piece from each side of the block, thus wasting that much. A still further advantage resulting from this method of cutting is the fact that only one of the oblique sides of each block intersects the fiber or grain of the wood, and hence a liability of splitting at the lower corner is lessened exactly one-half as compared with a block having both of its sides cut obliquely to the fiber. A still further advantage is described in the patent itself for a pavement, No. 94062, which, by reason of one side only being oblique to the fiber of the wood, avoids accidental clotting of the filling material. A still further and greater advantage probably than all of these is due to the
130 rapidity with which the blocks may be formed in saving of time in the handling of the same. One cut is described in the patent as a splitting cut serving to form two blocks, whereas by the old and well-known method of forming wedge-shaped blocks two cuts were necessary to make one block, and they must of necessity be exactly alike—each block is like the other.

11 Q. Will you make us a drawing showing the end of two blocks, one block cut by the new method and one by the old method?

Witness makes a drawing and says:

A. I have made a sketch showing an end of each of the different kinds of blocks referred to in the question, one marked "A," representing the ancient block, while "B" represents one made in accordance with the Ballard patent No. 94063.

(The drawing just made and referred to by witness is offered in evidence by complainant's counsel, and the same is herewith filed in evidence and marked "Exhibit K.")

Witness, further answering, says: In the former the grain runs obliquely to both sides, the dotted lines showing the waste
131 in forming such a block; while in "B," which represents the Ballard block, the grain runs parallel to one side only and oblique to the other, there being no waste except such as occurs at the end of the log when beginning to make the blocks, as before described by me.

(Counsel for complainant here request the examiner to mark for identification another block which is proposed to be offered in evidence hereafter, and the same is marked for identification "model D.")

12 Q. Please look at this block, marked "model D," and compare it with the blocks described in the Cowing patent No. 101,590?

A. I have compared it with the block shown in the Cowing patent and in its outside configuration it is substantially the same as the blocks represented at figure six of the drawing in that patent, beveled on each side.

13 Q. You say substantially the same. In what respect does it differ?

A. It does not differ in configuration—my attention was directed to the fiber.

14 Q. Confining yourself to the configuration of the block,
132 please compare it with figure six in the drawing in the Cowing patent.

A. I should say that they were exactly the same.

15 Q. Now, please compare that block, "model D," with the block described in the patent of Ballard and Waddell, No. 94062, and referred to in first claim of that patent.

A. I should say it is identically the same.

16 Q. The first claim in that patent, Mr. McIntire, ends with the words "and produced substantially in the manner referred to." What evidence, if any, does the block, "model D," contain that it was produced in the manner described in this patent?

A. It is apparent to me, after careful observation of the block, that one of its beveled sides is formed by the cut of a saw, its opposite bevel side being the plain or grain side, and that it was produced by substantially the same process or method described in the Ballard patent, No. 94063, which consists in splitting, as before stated, a double block by a single incline cut.

17 Q. How does the fiber of the wood in this block, "model
133 D," run in relation to the bevel sides?

A. It is parallel with one and intersected by the other, precisely the same as in the Ballard block.

WM. C. McINTIRE.

Subscribed and sworn to before me this 5th day of May, A. D. 1881.

ALBERT HARPER, *Examiner.*

134 DISTRICT OF COLUMBIA, } ss:
County of Washington, }

I, Albert Harper, examiner in chancery, do certify that, in pursuance of written notice between counsel for the respective parties, the foregoing depositions were taken down by me and reduced to writing in the presence and from the statements of the witnesses at the time and place designated in the caption thereof, and were read over to the witnesses and by them subscribed in my presence, the witnesses having been by me first duly sworn to testify the truth, the whole truth, and nothing but the truth touching the matters at issue in said cause.

I further certify that I am not of counsel for any of the parties to said cause or in any manner interested therein, and that my fees have been paid.

ALBERT HARPER, *Examiner.*

135 DISTRICT OF COLUMBIA, } ss:
County of Washington, }

In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DIST. OF COL. } No. 7239.

Be it remembered that at the examination of the within-named witness, W. C. McIntyre, produced by the complainant for cross-examination by the defendant, counsel for respective parties were present, and I, Edwin Forrest, examiner in chancery, do certify that the hereinafter set out deposition was duly taken down by me from the statements of the witness at the time and place, to wit, on Friday, July 8, 1881, and continued from time to time by adjournments as in them noted, and at the office of Marcellus Bailey, 501 F street northwest, in the city of Washington, District of Columbia, and the same was not signed by him, the counsel for the respective parties waiving his signature, the said witness having been first duly sworn according to law.

I further certify that I am not of counsel for any of the
136 parties to said cause or *to* any *moreover* interested therein.

EDWIN FORREST, *Examiner.*

In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

WASHINGTON, D. C.,
WEDNESDAY, *June* 29, 1881—1 o'clock p. m.

Met pursuant to agreement of counsel and adjourned till Thursday, July 7th, 1881, at one (1) o'clock p. m.

EDWIN FORREST, *Examiner.*

THURSDAY, *July 7th*, 1881—Two (2) o'clock p. m.

137 Met pursuant to adjournment and adjourned till to-morrow (Friday), July 8th, 1881, at two (2) o'clock p. m.

EDWIN FORREST, *Examiner.*

FRIDAY, *July 8th*, 1881.

Met pursuant to adjournment.

Present: A. S. Worthington, Esq., solicitor for complainant, and witnesses; Francis Miller and Marcellus Bailey, solicitors for defendant.

Whereupon, WILLIAM C. MCINTYRE, a witness produced and sworn on behalf of complainant, was recalled and cross-examined as follows:

By MARCELLUS BAILEY:

Question. Please state what knowledge you have practically concerning wood pavements and the laying of the same and the machinery or apparatus for making paving blocks.

Answer. I have no knowledge as a practical wood-pavement layer or as a builder of machinery. My only knowledge on the subject relates to the patents and the construction and operation described therein and the method of laying, and so forth. I have seen wood pavements laid in the streets of Washington, but I have never
138 given any special attention to it.

Q. Have you ever seen machinery for cutting timber into blocks?

A. I have an indistinct recollection of having seen a machine near the Baltimore and Ohio depot some years ago. That is the only one I recollect of now of ever having seen constructed for that purpose.

Q. Did you examine the machine?

A. I did not.

Q. When did you see it?

A. I cannot state exactly the time, but it was during the season when wood pavements were being laid so extensively in Washington.

Q. How was the cutting done—by a saw?

A. It was done by a saw.

Q. In what respect, if any, did the machine, as far as you recollect, differ from any machine for sawing timber?

A. My recollection on the subject is that the table over which the lumber was conveyed to the saw was inclined so that the saw would produce an oblique cut.

Q. Do you mean to say that in that respect it differed from ordinary machines for sawing lumber?

A. Yes, sir.

139 Q. State what knowledge you have of such machinery.

A. My knowledge of sawing machinery is not very extensive. I have seen saw-mills, of course, very frequently in my life, and observed in an ordinary way their mode of construction and

operation. I have never made a special study of sawing machinery. I never had occasion to do so.

Q. Did you never see a sawing machine before the one mentioned which had an inclined bed for the lumber to pass over to the saw?

A. I have never seen sawing machines which had an inclined bed to assist in delivering the lumber to the table upon which it was subsequently cut. I don't recollect of ever having seen a sawing machine in which the inclination of the bed served to present the lumber during the cutting operation of it, that an oblique cut would be made.

Q. Do you know how lumber is and has been for a long time ordinarily sawed on a bevel?

A. I have no personal knowledge of the fact. I would naturally presume the easiest method to be inclining the table, but, as I have stated before, I have never made an examination of this subject of machinery.

Q. Are you not aware that it has been customary for many years to use sawing machines having a table inclined with the saw
140 for the purpose of cutting up lumber into pieces on a bevel?

A. I have already stated that such machines had never come under my observation and that I never had made an examination of the subject.

Q. What is the object of forming paving blocks with inclined sides, usually?

A. The object of forming the inclined sides is in order to obtain wedge-shaped spaces for the concrete material, as described in several of the patents which I examined and referred to in my examination-in-chief.

Q. The object is, is it not, to obtain space between the adjoining blocks for the introduction of some filling of some kind?

A. It is, undoubtedly.

Q. Before the dates of the patents referred to in your testimony-in-chief wood pavements had been laid, had they not, with spaces between the blocks for the reception of concrete or other filling?

Solicitor for the complainant objects to the question on the ground that this line of examination is an attack upon the validity of complainant's patents and therefore not proper cross-examination, because this witness was examined in chief only as to whether
141 the pavements laid by the defendant infringed those patents, assuming them to be valid.

A. My recollection is that they had.

Q. How are those spaces obtained?

A. Spaces were obtained by separating the blocks.

Q. How were they separated?

Solicitor for the complainant reports his last objection to the questions made since, and the witness is notified by complainant's counsel that in his opinion this is an examination of him as an expert by the defendant, and that he is not called upon to answer the

questions, subject, of course, to the *directness* of the court in the premises.

WITNESS: I decline to answer unless instructed to do so by the court. I was not examined upon the state of the art.

Q. In your answer to direct interrogatory No. 2 you state that some eight (8) or ten (10) years ago you made yourself acquainted very extensively with the subject of wooden pavements, having occasion to make frequent and extensive examinations into the Patent Office as to the character of the patents which had been issued to other parties compared with those which I was seeking to
142 obtain. Were these patents to which you refer patents for wedge-shaped blocks?

Solicitor for the complainant objects to the question as calling for oral evidence of written documents.

A. My answer in examination-in-chief to question No. 2 was intended simply to indicate what opportunities I had had to familiarize myself generally with the subject of wooden pavements and as going to show that I might be competent to determine the scope of the patents which were submitted to use for examination. As to what the condition of the prior state of the art was at that time would be a matter of recollection entirely, and my memory had not been refreshed, for the reason that I had not expected to testify upon that subject. I was called upon to testify upon the assumption that the patent that I was to interpret was valid. Anything I should say now upon the subject would be a matter of memory entirely, and I candidly state that I do not recollect sufficiently well the state of the art at that time to testify. I will state further that had this question been asked at the time that I made the extensive researches in the Patent Office I could readily have answered the ques-
143 tion, but I do not now recollect what the construction and arrangements of the patents were which antedated the dates of these patents. When I was examined it was without any preparation and without any expectation of being called upon to testify as to the state of the art, and had this question been asked at the time I was familiar with the subject I would have answered it. As to the information that I possessed myself of at that lime, it has entirely passed out of my mind, and it would be hazardous for me to say yea or nay to anything touching that subject at this time.

Q. You have no recollection, then, as to any of the patents referred to in your answer to direct interrogatory No. 2, whether any one or more of those patents referred or related to wedge-shaped blocks for paving purposes?

Solicitor for complainant repeats his last objection to question.

A. I can say candidly that I have not the slightest recollection of any of the peculiar methods of construction. I can simply say that I cannot recollect that. There were several patent cases that I had, and I appealed one or more of these patents as an associate
144 attorney in the premises. The patents which I obtained were unquestionably those that had wedge-shape spaces upon them and——

Q. Name such of the patents as you now remember which you obtained at that time for pavements having wedge-shaped blocks or spaces with wedge-shaped openings between them.

Solicitor for the complainant objects to the question for the same reason that the last question was objected to.

A. I cannot recollect any by name except the B—— pavement, to which I have referred in my examination-in-chief. I do not recollect the numbers and dates of those.

Q. Had you anything to do with obtaining letters patent No. 101,590 referred to in your examination-in-chief?

A. I do not recollect that I had. I may have been connected with it. I have an indistinct recollection that I was connected with some reissue of the patent, I think. I may be mistaken about that, even. I do not recollect the fact, whether I was or not.

Q. Examine certified copy of letters patent No. 101,590,
145 Complainant's Exhibit A, and the drawings annexed thereto, and state whether or not the blocks represented in figures 1 to 4, inclusive, are not wedge-shaped blocks.

A. They are.

Q. Looking at the grain of the wedge first represented in the blocks in figure 1, does not that grain run substantially parallel with one side of the block throughout the whole series?

A. I think it seems to be intended to be so represented. There are one (1) or two (2) exceptions where it might appear otherwise, but the exceptions are small compared with the whole number of blocks.

Q. And on the other vertical side of each block the grain appears to be inclined at a slight angle, does it not?

A. It does appear to be, but I will add, in order to be clear, that it does not appear that the lines indicating the grain were intended to convey the idea of being parallel with one side and intersecting the other, but simply to indicate the grains without reference to its construction, for in figure 2 it appears to be intersected in both sides, while in said figure the block is represented with one straight and one oblique side. My judgment is that these grain lines are intended simply to indicate the longitudinal direction of the blocks

Q. State your reasons for this conclusion.
146 A. The reason is found in the first part of my answer, that in the two (2) figures, figure 1 and figure 2, the grain lines are inconsistent with the theory that the grain runs parallel with one side and oblique with the other.

Q. Would it not be natural to suppose that in the blocks shown in figure 1 the grain on the left vertical side of each block runs parallel with that side?

A. Looking at that figure without reference to any other, that would be a fair presumption.

Q. Looking at the figures referred to, what would be the natural presumption as to the manner in which these blocks were produced?

Solicitor for the complainant states that this line of examination,

and the last question in particular, is again objected to as an attack upon the validity of one of the complainant's patents and therefore not proper cross-examination, and the witness is again instructed that he need not answer the question unless he desires to do so, subject, of course, to the direction of the court.

WITNESS: I decline to answer unless instructed by the court.

147 Q. In figure 6 of the drawing in Complainant's Exhibit A the block is shown with two (2) inclined sides, while in figure one (1) one side only is inclined. Are these two (2) forms of block substantially the same?

Solicitor for the complainant repeats his last objection to the question.

A. They are not substantially.

Q. What difference is there in substance?

Solicitor for the complainant repeats his objection last given to the question, and added to the witness, "You can answer if you want to, but I would not if I were in your place."

A. A different form of the wedge-shape spaces between two (2) wedge-shape blocks results.

Q. What material different result follows from that difference in form?

Solicitor for the complainant repeats his objection last given to the question.

A. I cannot see that any specially different result results from it.

Q. Then is there any substantial difference between the two (2) blocks referred to?

148 Solicitor for the complainant repeats his objection last given to the question.

A. None, except in the particular that I have stated.

Q. I do not understand you. You state that no material different results follow between the two?

A. Yes.

Q. If that be the case, that there is no material difference in result between the two (2)—if that be the case, is there any material difference between the two (2)? Or, in other words, is that difference material or simply a matter of ornamentation?

Solicitor for the complainant repeats his objection last given to the question, and he further objects to the counsel for the defendant arguing the case with his own witness.

A. There is no material difference in the practical results unless it be a greater liability of the concrete to clog in one or the other of those sides, resulting from this difference in form, but, not being a practical wood-pavement layer, I do not know whether that would ensue.

Q. Suppose a rectangular block of wood six (6) inches long and

eight (8) inches wide and six (6) inches thick to be cut lengthwise obliquely, so as to make two (2) blocks of equal size, four and
149 a half ($4\frac{1}{2}$) at one end and three and a half ($3\frac{1}{2}$) at the other; state whether such a block would not be the same as those shown in figure 1 in the drawing in Exhibit A.

Solicitor for the complainant objects to the question as attacking the validity of complainant's patents, and therefore not proper on cross-examination.

A. It would be substantially of the same shape.

Q. State in what manner wedge-shaped blocks have usually been produced, if you know.

Solicitor for the complainant repeats his last objection, and the witness is instructed that he is not called upon to answer the question unless told to do so by the court.

WITNESS: I decline to answer unless instructed by the court.

Q. In your direct examination you have spoken of the usual and well-known method of forming wedge-shaped blocks. State what that usual and well-known method is.

A. It was to cut both sides of the rectangular block and to saw wedge-shape spaces in each side.

Q. How did you obtain knowledge of this method? State the source of your information.

150 A. I had seen wood paving blocks at the time that I took out Ballard's patent. I was at work on the Ballard patent.

Q. Where did you see them and when?

A. I saw them in my office, and they were brought to me by Mr. Ballard at the time that I was at work on his application for a patent. The difference between that and the method involved in his case was explained to me at the time by him. Up to that time I had had no experience whatever in wood-paving matters and had never seen one laid.

Q. Was this the only source from which you derived information concerning the previous state of the art?

A. That is all.

Q. Who is Mr. Ballard, to whom you have referred?

A. He is the inventor of what is known as the lock block or wedge-shape block and the man who has testified in this case—Mr. W. W. Ballard.

Q. Where, if you know, were such blocks made as those referred to in your preceding answer?

A. I do not know.

Q. By whom were they made, if you know.

A. That I do not know. I never saw or had anything to do with wedge-shape block pavements prior to that time.

Q. Examine sketch marked "A" in Complainant's Exhibit
151 K and state whether there was ever a paving block laid in a pavement like the one represented in that sketch.

A. I never saw one laid and I do not know whether there ever was one or not.

Q. Do you know whether any paving block such as that represented in sketch "A" of Complainant's Exhibit K was ever made?

A. I have already testified that I have seen such blocks, shown me by Mr. Ballard at the time I was engaged in taking out his patents. I also state that I never saw any such blocks laid in a pavement. I will state further that at the time that this subject of wedge-shaped blocks was brought to my attention it was supposed to be a departure from the ordinary paving blocks, which were usually rectangular in form.

Q. At the time that the wedge-shape block was brought to your attention were there not one or more patents already granted for wedge-shaped paving blocks?

Solicitor for the complainant repeats his last objection to the question, and further objects to it as to prove orally the contents of patents.

A. I do not recollect now whether there were or not, but my recollection is that there were not.

152 Q. You were concerned, were you not, in letters patents Nos. 94062 and 94063?

A. My best recollection is that I was. I cannot state positively, though. I took out several patents for Mr. Ballard, but I cannot recollect the dates and numbers of them. I recollect distinctly that I attended to some patent business for him.

Q. You state, as an advantage resulting from the method of cutting described in patent No. 94063, that the liability of splitting at the lower corner is lessened exactly one-half as compared with the block having both of its sides cut obliquely with the fibre. Please state your reasons for this opinion.

A. The reason is a very plain one. Besides being oblique to the grain, it is much easier to break where the distance is one inch or a quarter or a half an inch than it would be where the grain runs the entire length of the block, and on the principle that it is much easier to cut off a corner than it is to split the entire length.

Q. In proportion, then, as the grain tends towards parallelism to the side the liability of splitting is reduced, as I understand?

A. Yes, sir.

Q. And the greater the angle of inclination at which the grain stands to the side the more liab*ility* the corner is to split?

153 A. Yes, sir.

Q. Do you know in a practical way whether there would be increased liability of breaking at the corner in blocks equally cut by what you call the old and well-known method?

A. As I before stated, I never saw any of them laid and I could only judge from what I have seen. In blocks having one side oblique to the grain I have seen the corners break off, and I assume that if there were two (2) such spaces to every block the chances would be proportionally increased of breaking.

Q. Was that at the upper or lower corner of the block that you observed the breaking?

A. At the base of the block.

Q. That was in a block that has one side parallel to the grain?

A. Yes, sir.

Q. In blocks having one side parallel with the grain does not the grain stand at a greater angle with the other side than it does with either of the sides of the block cut by what you call the old and well-known method?

A. Not necessarily; it depends altogether upon the obliquity in which the side of the block is cut.

Q. Suppose both to have the same obliquity, what then?

154 A. Probably a greater risk than a block having one side only parallel.

Q. Suppose a block four (4) inches wide at the base, three (3) inches wide at the top, and six (6) inches high, with sides inclined at equal angles, what would be the degree of obliquity?

A. A half an inch on each side.

Q. How much per inch?

A. One-twelfth of an inch.

Q. Suppose a block of those dimensions and of that shape with vertical grain, would there practically be any liability of splitting at the corners?

A. Not very much, I expect, with such a slight degree of inclination.

Q. In your direct examination you state a still further advantage in a block of the kind described in patent No. 94062, which is: Only one side being parallel to the fiber of the wood, accidental clogging of the filling material is avoided. Please explain what you mean by that.

A. I mean that in proportion as the end of the grain is presented to the filling gravel or concrete in that same proportion the liability exists to have the gravel wedge at that point where it comes in contact with the end of the grain, and not so much liability where one or both sides are smooth. This advantage in practice,

155 though, I deem very slight.

Q. Is the side of the block vertical with the grain smoother than the side which intersects the grain?

A. It is smoother in the sense that I speak of—that is, there would be a lateral compression of the grain in the sliding of the stone or gravel between, whereas in the projecting grain the gravel would be liable to imbed itself into the inclined surface of the block rather than slide. The grain would prop up in one case, whereas in the other it would spread apart—spread away.

Q. This advantage, as I understand you, you deem more theoretical than practical?

A. I think it is quite slight.

Q. You have stated that in your opinion the block, Complainant's Exhibit D, was produced by the same process or method as that described in the Ballard patent No. 94063. State your reasons for that opinion.

A. My reasons are that the grain runs parallel to one side and oblique to the other, and the base of the block makes an acute angle

with the side having the straight grain, which are the conditions to be found in the Ballard block, and made according to his method.

Q. State what you understand that method to be.

156 A. That method I understand to be making a cross-cut of the base of the timber oblique to the longitudinal direction of the timber to form the base and top of two (2) blocks, and then splitting the block so made at the same angle across or about the centre of the block, intersecting at the centre of the block, as clearly illustrated in the model which I hold in my hand, designated model A.

Q. How do you determine that the block, Exhibit D, was produced in the manner specified in your preceding answer?

A. I have already stated that the relation that the grain bears to the two (2) sides and the fact that the base of the block makes an acute angle with the straight side—straight fibre side—has led me to this conclusion because there are identically the same conditions to be found in the Ballard block, and for no other reason.

Q. Does it follow that because the block possesses the characteristics specified by you that it must have been made by the methods specified?

A. It does not follow absolutely, but I reached that conclusion because there would be quite a waste of material to produce

157 that block in any other way with which I am familiar.

Q. Would it not be feasible to make a block of that kind out of a rectangular piece of timber without following the method specified in patent 94063?

A. I do not believe it would be. It certainly would not be economy to do so.

Adjourned till to-morrow (Saturday, July 9th, 1881) at two o'clock p. m.

SATURDAY, *July 9th*, 1881—two o'clock p. m.

Met pursuant to adjournment.

Present: A. S. Worthington, Esq., solicitor for the complainant, and Messrs. Marcellus Bailey and Francis Miller, solicitors for the defendant.

Whereupon WILLIAM C. MCINTIRE, a witness upon the part of complainant, was further cross-examined as follows:

By MARCELLUS BAILEY, Esq.:

Q. Examine complainant's patent No. 94062, Exhibit D, and state to what you understand the words "produced substantially

158 in the manner referred to in claims 1 and 2" to refer?

A. I understand those words as referring to the method of cutting blocks for street pavements prescribed in another application pending at the same time with the one upon which this patent was granted, and to which reference is made in this patent.

Q. Is that process or method prescribed in any one of the patents on which this suit is brought?

A. The process is described in patent No. 94063 to W. W. Ballard, and — dated August 24th, 1869, and identified as Exhibit G.

Q. State what you understand that method or process to be.

A. I understand that method to consist substantially in cutting off one end of a piece of timber, at an inclination such as is desired, from one side of the block; then cutting a block from the timber on a line parallel with the first cut and sufficiently far therefrom to form from said block two (2) paving blocks, which is done by what is known as a splitting cut, at the same angle with the other, and is represented by the lead-pencil marks in model A, which I have already referred to in my examination.

Q. Do you understand that what you call the splitting cut
159 must be made at the same angle with the other in order to accomplish the method set forth in that patent?

A. It is not necessary that it should be at exactly the same angle, it only being necessary to split at such a point and at such an angle as to produce two (2) similar blocks from a single piece.

Q. State what kind of paving block you understand to be described and claimed in letters patent No. 94062.

A. I understand that block to be one in which the two (2) sides are oblique to the base and top and the grain running parallel with one of its sides and intersected by the other. The grain also being slightly oblique to the base and top of the block by reason of the first cut, made as illustrated in figure 1 of letters patent 94063, Exhibit G, because letters patent 94062, Exhibit D, specially refers to the method shown and described in said patents, Exhibit G, such a block would necessarily form an acute angle at that point where its grain sides and base intersect.

Q. Supposing a block possessing the characteristics set forth in the claim of patent No. 94062 were produced by a method or process different from that described in patent 94063, would that
160 block be such a one as is contemplated by and embraced in the terms of the claims of patent 94062?

Solicitor for the complainant objects to the question as being one of law and not a question for an expert.

A. It would be immaterial by what process the block is produced if the characteristics are the same.

Q. Suppose a block were cut from a piece of timber by a square cut instead of an inclined cut, as represented in figure 1 of patent 94063, and that square-cut block was subsequently divided into two (2) wedge-shaped blocks by an oblique cut, as in sketch A, which I now hand you, in Defendant's Exhibit No. 1, would those wedge-shaped blocks be made in accordance with the method described in letters patent 94063? State your reasons for any opinion that you may give.

A. It would not, for the reason that in letters patent 94063 the first condition in that method of cutting blocks is said to be that the timber is placed under the saws, as shown in figure 1, in an inclined position, intersecting the grain at less or more than
161 right angles, whereas in the block illustrated by sketch A, De-

fendant's Exhibit 1, the grain would be intersected at right angles to the point of intersection between the grain side of the block and the base, as shown in figure A, while the block made in accordance with the method described in said patent would be cut as heretofore explained.

Q. Would the block shown in sketch A of the Defendant's Exhibit 1 be the same or substantially the same as the wedge-shaped blocks described in patent 94062? State your reasons for any opinion that you may give.

A. I think not, for the reason that the block shown as A would have but one oblique side, while the block referred to in the letters patent would have both of its sides oblique to the base and top.

Q. In your judgment, is the difference stated material?

A. That is a matter that I should think a practical wood-pavement layer would be more competent to answer than myself, and any difference that exists, so far as I am able to state, would be a mere matter of theory on my part and would consist in the fact that the space between two (2) adjacent blocks would be a "V"-shaped space instead of a single wedge-shaped space where only one side of the block is level. In the "V"-shaped space the concrete filling might have a tendency to more securely hold adjacent blocks in place than it would in any other character of space between
162 the blocks, but, as before stated, this is a matter that an expert wood-pavement layer would know more about.

Q. By the method of cutting illustrated in sketch A, Defendant's Exhibit 1, you would obtain from a piece of timber by two (2) cuts, a cross-cut and an oblique splitting cut, two (2) wedge-shaped blocks, each of which has a grain side and a cut side, would you not?

A. I would.

Q. And those blocks could be laid in rows for paving purposes with a wedge-shaped space between adjoining rows, could they not?

A. They could be so laid as to produce a wedge-shaped space.

Q. Suppose a block were cut off from a piece of timber by a slanting cross-cut, but at right angles with the base and top, as represented in sketch B of Defendant's Exhibit 1, would that be the same or substantially the same method described in patent No. 94063? State your reasons for any opinion that you may give.

A. I think it would.

Q. Could you not produce that splitting cut by feeding the block over a horizontal table to a saw revolving in a vertical plane?

A. Certainly.

Q. Would the wedge-shaped blocks illustrated in sketch B
163 of Defendant's Exhibit 1 be the same or substantially the same as those described in patent 94062?

A. Yes.

Q. Suppose wedge-shaped blocks produced in the manner illustrated in sketch A of Defendant's Exhibit 1 were subsequently cut off at the top and base, as shown in sketch marked C, Defendant's Exhibit 1, would such blocks be the same or substantially the same as those described in patent No. 94062?

A. They would.

Q. Would they not be identically the same?

A. They would.

Q. Would the method of producing blocks such as represented in sketch C of Defendant's Exhibit 1 be the same or substantially the same as the method set forth in patent No. 94063?

A. It would not.

Q. Would it be produced in the manner described? (I quote from specifications in letters patent No. 94062, in another pending application now on file in the United States Patent Office and entitled "A method of cutting blocks for street pavements, prepared and executed by us on the 29th of September, 1868.")

A. They would not.

Q. You understand, do you not, that the language above
164 quoted refers to letters patent No. 94063, subsequently granted?

A. I do.

Q. If the blocks shown in sketch C, Defendant's Exhibit 1, are identically the same as the blocks shown and described in letters patent No. 94062, how do you determine that the paving block marked complainant's model D was made in the manner specified in patent 94063 rather than in the manner described with reference to sketch C?

A. Because said block was identified as one having been laid subsequent to the date of the letters patent referred to, which fully described the method of making such block, and because it embraces all the characteristics of the block, and because, further, the method of making a block such as illustrated in sketch C, Defendant's Exhibit 1, I was never familiar with, until to-day, and know not but what it may be the invention of counsel, and I assumed in my direct examination that a block having the characteristics of that shown in the patent must have been made by the method at that time known, there being no other with which I was familiar which would produce substantially the same result.

Q. Then you have no knowledge of how model D was made; all that you know is simply surmise and guess?

165 A. It is a surmise, but hardly a guess. I have no absolute knowledge as to how said model was made, as I did not see it made.

Q. Please examine this document which I now hand you and which I ask the examiner to mark for identification as Defendant's Exhibit 2 and state whether or not you are the same William C. McIntire whose name appears in said exhibit as counsel for W. W. Ballard.

A. I am William C. McIntire and I presume I am the same as the one who appears as counsel in that case.

Q. Examine those papers until you feel perfectly sure and then say whether or not you are the same man.

A. After reading the papers I feel right confidant that I am the same man—William C. McIntire—who was associate attorney in that case.

Cross-examination by A. S. WORTHINGTON, Esq.:

Q. State when your relation as counsel for Mr. Ballard ceased, if they have ceased at all.

A. I cannot recollect the exact time, but it has been several years since I have done any business for him.

Q. State if you have any connection with this case except as a witness.

A. I have not the slightest.

166 Q. State whether, if paving blocks were made as shown by figure C in Defendant's Exhibit 1 and by the method that is described in patent 94063 from a piece of timber of the same size, there would be any difference in the size of the blocks?

A. Yes; I think there would be a difference in the size of the blocks.

Q. Which would be the smaller?

A. That made according to sketch C.

Q. You were asked whether, if a block of wood eight (8) by six (6) by six (6) inches in size were sawed so as to produce two (2) blocks each six (6) inches high, four and a half ($4\frac{1}{2}$) at the bottom, and three and a half ($3\frac{1}{2}$) at the top, such blocks would not be substantially of the same shape as those shown in figure 1 annexed to patent No. 101,590, Exhibit A, and I understand you to say that they would be substantially the same. Would not the blocks produced in the manner described each have one side that would be perpendicular to the base?

A. Yes, sir.

Q. And would they not in that respect differ from the blocks shown in figure 1 of the drawing annexed to patent No. 101,590?

A. I think not, as I understand this drawing.

Q. These spaces between the blocks shown in figure 1 are what you term single-wedge shape?

167 A. Yes, sir.

Q. And it was upon that supposition that you made the answer to the question?

A. Yes, sir.

Q. You also state in your cross-examination that the only information that you had as to the state of the art of making wood-pavement blocks at a certain time was that derived from Mr. Ballard, and you understand from him that up to the time he came to you the usual way of making wedge-shaped blocks was by making square blocks and cutting off two (2) corners.

A. That is true.

Q. After he came to you did you make any investigation in the Patent Office and elsewhere as to the state of the art in relation to that matter?

A. Yes.

Q. Did you find or see in your investigation anything inconsistent with the statements that Mr. Ballard made to you?

Solicitor for the defendant objects to the question.

A. I do not recollect now. I have had such information furnished me by the office, but it is a mere matter of memory, however.

W. C. McINTIRE,
Per E. FORREST, *Examiner.*

168 Solicitor for the defendant here gives notice to the solicitor for the complainant that he will, at or before the — hereof, move the court to strike out the testimony of Mr. McIntire, on the ground of Mr. McIntire's declining to answer certain questions at the suggestion of the solicitor for the complainant.

169 COMPLAINANT'S EXHIBIT A.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Equity Docket 20.

Specification forming part of Letters Patent No. 101,590, dated April 5, 1870.

To all whom it may concern:

Be it known that I, Turner Cowing, of the city and county of San Francisco, in the State of California, have invented a new mode of constructing wood pavements for streets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in providing and arranging blocks of a peculiar shape in manner to form wedge-shaped crevices for the reception of earth or gravel, and wherein such earth or gravel will be returned to act as a key to bind and confine the blocks in their place.

Figure 1 represents a section of road paved with the blocks, complete. Figure 2 represents the straight side of a block, with the inclined side at E. Fig. 3 represents the top of a block, and also the section of the base D. Fig. 4 represents the straight side of a block, which is set next to the inclined side of the adjoining block.

In Fig. 1 letter A represents the top of the block, B the side, and E the crevice and gravel. The blocks should, of course, be placed so that the gravel spaces may extend lengthwise across the direction of the street or road, so that, besides wedging and holding the blocks securely, they may furnish a better foothold for animals drawing heavy loads.

In the drawing the front edge of the pavement, as shown, represents the side next the curb or a section parallel to the curb.

It is obvious that the wedge-shaped crevices may also be formed by setting the above-described blocks so that two vertical sides and two inclined sides come together alternately, as shown in figure 5; and it is equally obvious that two blocks having their vertical sides together may be replaced by a single block having two inclined faces,

as shown in Fig. 6, without any material change of plan, and with a considerable saving of labor and expense in the construction.

To construct my pavement prepare the roadway by grading it to the proper form and ramming solid; then set the blocks as shown in Fig. 1, confining them permanently between the curbs of walks; then fill and ram the crevices with earth and gravel.

I do not claim a wood pavement composed of wedge-shaped blocks when the blocks are laid alternately on larger and smaller ends so as to form a continuous surface of wood, but—

What I do claim, and desire to secure by letters patent of the United States, is—

A wood pavement composed of blocks, each side having a single plane *service* and one or more of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth.

TURNER COWING.

Witnesses:
W. O. ANDREWS.
J. R. BRETT.

(Here follows diagram marked page 170.)

171 EXHIBIT "B." Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } No. 7239, Doc. 20.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an assignment from T. E. Brown to W. W. Ballard, recorded in Liber W[19], page 448, and that said annexed copy has been compared by me with the original, and that it is a correct transcript thereof and of the whole of said original.

In testimony whereof I, V. D. Stockbridge, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this seventh day of April, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] V. D. STOCKBRIDGE,
Acting Commissioner.

172 Liber W[19], p. 448.

Whereas Turner Cowing, of San Francisco, California, did make certain new and useful improvements in wood pavements, for which letters patent of the United States were granted on the 5th day of April, 1870, and numbered 101,590;

And whereas I, Talmadge E. Brown, of Des Moines, in the county of Polk and State of Iowa, am the sole owner of said invention and letters patent by assignment duly recorded at page 150 of Liber Q[19], "Transfers of Patents;"

And whereas William W. Ballard, of Elmira, in the county of Chemung and State of New York, is desirous of acquiring an interest therein, and has paid to me the sum of one dollar, receipt of which is hereby acknowledged;

Now, therefore, this indenture witnesseth: That for and in consideration of the said sum to me paid I have assigned and transferred, and do hereby assign and transfer, unto the said Wm. W. Ballard one undivided two-fifths (2/5) of all my right, title, and interest in and to the said invention as secured by the said letters
173 patent, as well as any and all reissues that may be granted, the same to be held and enjoyed by the said Wm. W. Ballard and his legal representatives as fully and entirely as the same might have been held and enjoyed by me had this assignment and sale not been made.

Witness my hand & seal this 3rd day of September, 1870.

TALLMADGE E. BROWN.

In presence of—
WM. C. McINTIRE.

Recorded Jan. 25, 1876.

174 EXHIBIT "C." Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Equity No. 7239, Doc. 20.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an assignment from T. E. Brown to Edward L. Marsh, recorded in Liber K[13], page 235, and that said annexed copy has been compared by me with the original, and that it is a correct transcript thereof and of the whole of said original.

In testimony whereof I, V. D. Stockbridge, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this

seventh day of April, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] V. D. STOCKBRIDGE,
Acting Commissioner.

175 Liber K[13], page 235.

[Stamp.]

Whereas Turner Cowing, of San Francisco, California, did make certain new and useful improvements in wood pavements, for which letters patent of the United States were granted on the 5th day of April, 1870, and numbered 101,590;

And whereas I, Talmadge E. Brown, of Des Moines, in the county of Polk and State of Iowa, am the sole owner of said invention and letters patent by assignment duly recorded at page 150 of Liber Q[12], "Transfers of Patents;"

And whereas Edward L. Marsh, of New York, in the county of New York and State of New York, is desirous of acquiring an interest therein, and has paid to me the sum of one dollar, receipt of which is hereby acknowledged:

Now, therefore, this indenture witnesseth: That for and in consideration of the said sum to me paid I have assigned and transferred, and do hereby assign and transfer, unto the said Edward L. Marsh one undivided one-fifth ($\frac{1}{5}$) of all my right, title, and
176 interest in and to the said invention as secured by the said letters patent, as well as any and all reissues that may be granted, the same to be held and enjoyed by the said Edward L. Marsh and his legal representatives as fully and entirely as the same might have been held and enjoyed by me had this assignment and sale not been made.

Witness my hand & seal this 3rd day of Sept., 1870.

TALMADGE E. BROWN.

In presence of—
WM. C. McINTIRE.

Recorded Nov. 21st, 1870.

177 EXHIBIT "D." Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Equity No. 7239, Doc. 20.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records

of this office of the letters patent granted William W. Ballard August 24, 1869, No. 94062, for improved wood pavement.

In testimony whereof I, V. D. Stockbridge, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this seventh day of April, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] V. D. STOCKBRIDGE,
Acting Commissioner.

178 No. 94062.

(2–155.)

THE UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these letters patent shall come:

Whereas William W. Ballard, of Elmira, New York, and Buren W. Waddell, of Memphis, Tennessee, have alleged that they have invented a new and useful improved wood pavement (said Waddell having assigned his right, title, and interest in said invention to said Ballard), and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventors or discoverers of the said invention, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said William W. Ballard, his executors, administrators, or assigns, for the term of seventeen years from the twenty-fourth day of August, one thousand eight hundred and sixty-nine, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this twenty-fourth day of August, in the year of our Lord one thousand eight hundred and sixty-nine, and of the Independence of the United States of America the ninety-fourth.

[SEAL.] W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
S. H. HODGES,
Acting Commissioner of Patents.

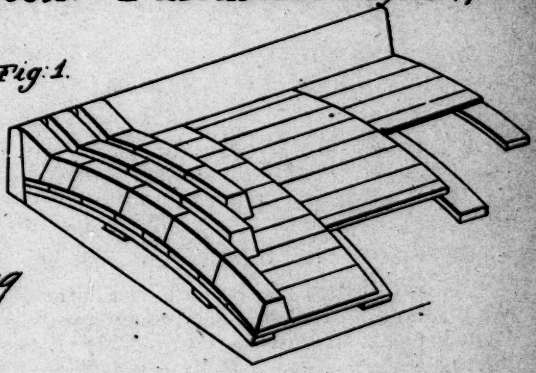
(Here follows diagram marked p. 179.)

Ballard & Waddell. 179

Wood Pavement.

No. 94,062. Patented Aug. 24, 1869.

Fig: 1.



No. 137.
Brown
v.
D.C.
p. 179

Fig: 3.

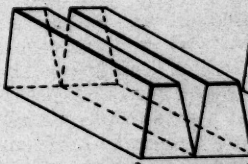


Fig: 2.

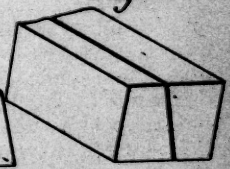
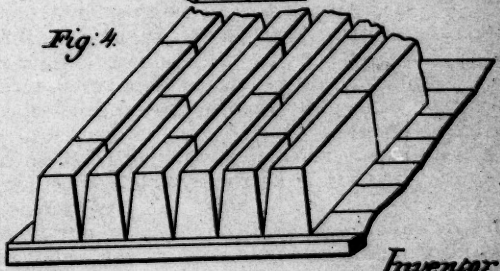


Fig: 4.



Witnesses
Samuel Smith
Henry J. Fretz

Inventor
Ballard & Waddell
by Alex. A. C. Mansfield
Attorneys

180 UNITED STATES PATENT OFFICE.

WILLIAM W. BALLARD, of Elmira, New York, and BUREN B. WADDELL, of Memphis, Tennessee. Buren B. Waddell assigns his right to Wm. W. Ballard.

Improved Wood Pavement.

Specification forming part of Letters Patent No. 94062, dated August 24, 1869.

To all whom it may concern:

Be it known that we, William W. Ballard, of Elmira, in the county of Chemung and State of New York, and Buren B. Waddell, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful improvements in street pavements; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a perspective view of a section of pavement embracing our improvement. Fig. 2 is a perspective view of a piece of timber from which the block is cut and showing the cuts made by the saw; and Fig. 3 is a perspective view of two of the blocks laid alongside of each other.

To more clearly illustrate our invention we will proceed to describe the construction, &c., referring by letters to the drawings.

A represents the bed of the street, which is made slightly arched, the ends of the arch resting against the curbs B B. Strips C are laid upon said arch at right angles to the curb and at convenient distances apart. Upon said strips is laid a flooring, composed of boards of any desired dimensions, and the blocks are then laid on this flooring in rows, and so as to break joints. These blocks are of a wedge shape, and are so laid as that their bases shall touch, forming a continuous arch across the street, and leaving V-shaped spaces between the rows. These spaces are filled with concrete or its equivalent, and the whole surface tarred over, if thought necessary. The gutters are formed by inclining the bed slightly upward at the curb and splitting the ends of the blocks off to fit against the curb and the last one of the street blocks.

The peculiarity of the blocks used in this pavement is that they are wedge-shaped and having both sides at acute angles with the base and the grain running parallel with one and oblique to the other of these sides.

A more perfect description of these blocks and the manner of producing them is given in another pending application, now on file in the United States Patent Office, entitled "A method of cutting blocks for street pavements," prepared and executed by us on the 29th day of September, 1868.

The advantages of blocks having both sides beveled, with the grain running, as described, over the ordinary wedge-shaped block,

are, first and most important, that only one corner of the base is at all likely to become broken off by transportation and rough handling, whereas in the ordinary block both corners are liable to such accidents. Another advantage of the relation of grain to the sides of the block is that the V-shaped spaces have one perfectly smooth side, and consequently less opportunity is afforded to the gravel in the filling to jam and leave the lower portion of the space loosely or entirely unfilled. This is believed to be a difficulty in pavements constructed of wedge-shaped blocks having the grain running vertically, and thereby exposing the end of the fiber on both the beveled sides of the blocks.

A pavement constructed of our improved blocks can be laid at a less cost than any other wedge-shaped pavement, owing to the cheapness of the blocks.

It has always been desirable to build pavements of wedge-shaped blocks, as they make a stronger and more durable pavement and are more easily laid, but so far it has been impracticable, owing to the expense of producing the blocks caused by the waste in material and extra sawing.

Having described the construction and advantage of our improved pavement, what we claim as new and desire to secure by letters patent is—

1. As an article of manufacture, wedge-shaped blocks having the grain running parallel to one and oblique to the other of their beveled sides, and produced substantially in the manner referred to.

2. A wooden street pavement constructed, substantially as hereinbefore described, of wedge-shaped blocks with the grain running and produced in the manner and for the purpose set forth.

In testimony whereof we have hereunto set our hands and affixed our seals this 19th day of July, 1869.

W. W. BALLARD. [L. S.]
BUREN B. WADDELL. [L. S.]

In presence of—
JOHNSTON G. FINNIE.
GEO. W. L. CROOK.

181 EXHIBIT "E." Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Equity No. 7239, Doc. 20.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records

of this office of an assignment from W. W. Ballard to T. E. Brown, recorded in Liber B[12], page 293, and that said annexed copy has been compared by me with the original, and that it is a correct transcript and of the whole of said original.

In testimony whereof I, V. D. Stockbridge, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this seventh day of April, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] V. D. STOCKBRIDGE,
Acting Commissioner.

182 Liber B[12], page 293.

Whereas letters patent of the United States were granted on the 24th day of August, A. D. 1869, to Wm. W. Ballard, of Elmira, New York, and Buren B. Waddell, of Memphis, Tennessee, for "improved wood pavement" (numbered 94062);

And whereas certain other letters patent were granted upon the same day to the said parties for "improved mode of cutting blocks for wood pavements" (numbered 94063);

And whereas I, William W. Ballard, above mentioned, became the sole owner of the entire right, title, and interest in and to the hereinbefore-recited letters patents by assignments duly executed, respectively, on the 19th day of July, 1869, and the 19th day of July, 1869, and recorded, respectively, at page 172, Liber A[12], and page 171, Liber A[12], "Transfers of Patents;"

And whereas I, William W. Ballard, did obtain in my own name certain other letters patent on the 24th day of August, 1869, for "improved machine for sawing blocks for paving" (numbered 94061), which letters patent I have surrendered with petition for reissue;

183 And whereas Talmadge E. Brown, of Des Moines, Iowa, is desirous of acquiring an interest in all three of the hereinmentioned letters patent and any reissues thereof that may be granted, and has paid to me the sum of five dollars, receipt of which is hereby acknowledged:

Now, this indenture witnesseth: That for and in consideration of the said sum to me in hand paid I have assigned and transferred, and do hereby assign and transfer, unto the said Talmadge E. Brown an undivided two-fifths ($\frac{2}{5}$) interest in and to each and all three of the hereinbefore-recited letters patent and any reissues that may be granted thereon, the same to be held and enjoyed by the said Talmadge E. Brown for his own use and behoof and for the use and behoof of his legal representatives to the full end of the term for which the said letters patent were originally granted as fully and entirely as the same might have been held and enjoyed by me had this assignment and transfer not been made.

In testimony whereof I have hereunto set my hand and seal this 20th day of September, A. D. 1869.

[Stamp.]

W. W. BALLARD. [SEAL.]

Signed, sealed, & delivered in presence of—
WM. C. McINTIRE.
HENRY S. JOHNSTON.

Recorded Sep. 20, 1869.

184 EXHIBIT "F." Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Equity No. 7239, Doc. 20.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an assignment from W. W. Ballard to Edward L. Marsh, recorded in Liber O^{13}, page 116, and that said annexed copy has been compared by me with the original, and that it is a correct transcript thereof and of the whole of said original.

In testimony whereof I, V. D. Stockbridge, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this seventh day of April, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] V. D. STOCKBRIDGE,
Acting Commissioner.

185 Liber O^{13}, page 116.

[Stamp.]

Whereas I, William W. Ballard, of Elmira, in the county of Chemung and State of New York, am the sole owner of letters patent for wood pavements and machinery for cutting the block, being letters patents numbered 94061, 94062, & 94063, dated August 24, 1869; No. 99391, dated February 1st, 1870, and No. 105,292, dated July 12, 1870;

And whereas Edward L. Marsh, of New York city, in the county and State of New York, is desirous of acquiring an interest therein:

Now, this indenture witnesseth: That for and in consideration of the sum of one dollar to me in hand paid, receipt of which is hereby acknowledged, I have assigned and transferred, and do hereby assign and transfer, unto the said Edward L. Marsh one undivided fifth part of all my right, title, and interest in and to the herein-recited letters patent *patent* and the inventions thereby secured, the

same to be held and enjoyed by the said Edward L. Marsh, for his own use and behoof and the use and behoof of his legal
186 representatives, to the full end of the term for which letters patent are granted as fully and entirely as the same might have been held and enjoyed by me had this assignment and transfer not been made, the same rights and privileges to extend to any reissue of the said letters patent which may be granted.

Witness my hand and seal this 3d day of September, 1870.

WILLIAM W. BALLARD.

Signed, sealed, and delivered in presence of—
WM. C. McINTIRE.

Recorded Nov. 21, 1870.

187 EXHIBIT "G." Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Equity No. 7239, Doc. 20.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted William W. Ballard August 24, 1869, No. 94063, for improved mode of cutting blocks for wood pavement.

In testimony whereof I, V. D. Stockbridge, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this seventh day of April, in the year of our Lord one thousand eight hundred and eighty-one and of the Independence of the United States the one hundred and fifth.

[SEAL.] V. D. STOCKBRIDGE,
Acting Commissioner.

188 (2–155.)

No. 94063.

THE UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these letters patent shall come:

Whereas William W. Ballard, of Elmira, New York, and Buren B. Waddell, of Memphis, Tennessee, have alleged that they have in-

vented a new and useful improved mode of cutting blocks for wood pavement (said Waddell having assigned his right, title, and interest in said invention to said Ballard), and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventor- or discoverer- of the said invention, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said William W. Ballard, his executors, administrators, or assigns, for the term of seventeen years from the twenty-fourth day of August, one thousand eight hundred and sixty-nine, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this twenty-fourth day of August, in the year of our Lord one thousand eight hundred and sixty-nine, and of the Independence of the United States of America the ninety-fourth.

[SEAL.] W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
S. H. HODGES,
Acting Commissioner of Patents.

(Here follows diagram marked p. 189.)

189 UNITED STATES PATENT OFFICE.

WILLIAM W. BALLARD, of Elmira, New York, and BUREN B. WADDELL, of Memphis, Tennessee. Buren B. Waddell assigns all his right to William W. Ballard.

Improved Mode of Cutting Blocks for Wood Pavement.

Specification forming part of Letters Patent No. 94063, dated August 24, 1869.

To all whom it may concern:

Be it known that we, W. W. Ballard, of Elmira, Chemung county, New York, and B. B. Waddell, of Memphis, Shelby county, Tennessee, have invented an improved mode of cutting blocks for street pavement; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification.

189

W. W. Ballard & B. B. Waddell,

Wood Pavements.

No. 94,063. Patented Aug. 24. 1869.

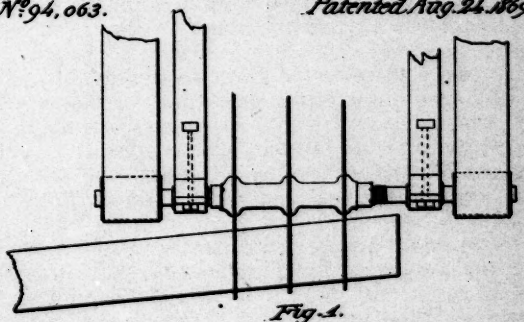


Fig. 1.

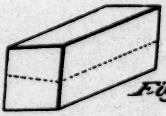
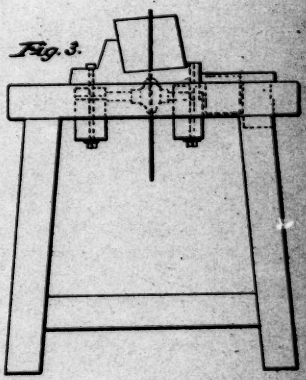


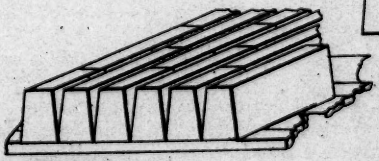
Fig. 2.

Fig. 3.



No. 137.
Brown
v.
D. C.
p. 189

Fig. 4.



Attest:
E. Sammons
Benj. A. Shepherd

Inventor,
Wm. W. Ballard
Burnie B. Waddell

Figure 1 represents the lumber as the blocks are being cut off in order to give the ends of the blocks the proper angle or bevel. Fig. 2 represents the blocks after being cut off as above described before splitting. Fig. 3 represents the blocks in the act of being split on a saw-table, showing the rest or guide necessary to cut them in the proper direction. Fig. 4 represents the blocks finished and placed in the pavement.

Our invention consists in a novel method of cutting and splitting blocks for wood pavement in such a manner that two cuts, or rather one cut and one splitting, will produce two finished blocks with level top and bottom and two sides beveled, one being with the grain and the other slightly oblique to the grain, without more waste of timber than is occasioned by the saws.

We take a piece of lumber four and a half feet long, twelve inches wide, and seven inches thick. This is placed under the saws, as shown in Fig. 1, in an inclined position, so that the first cut will produce blocks with two sides inclined, the top and bottom level or in parallel planes. The first cut produces nine blocks, such as shown in Fig. 2, out of a piece of lumber, as described above. Each such block will then be twelve inches long, six inches high with the fiber, and seven inches wide across the fiber. These blocks are then split, as indicated in dotted lines, Fig. 2, slightly oblique to the fiber, as seen also in Fig. 3, being brought toward the splitting-saw in an inclined position, inclined in contradistinction to a position level at top and bottom, in such a manner that the line of the cut will form the other two beveled sides of two blocks, each of which has the top and bottom level, or in parallel planes, and the sides beveled, as shown in Fig. 4, and, moreover, has the grain running in the direction of one of the beveled sides, as clearly shown in Figs. 2 and 3. These blocks will then be twelve inches long, six inches high, three inches wide at the top, and four inches wide at the base.

The figures of feet and inches we have, of course, used only as an illustration, as different dimensions of lumber may be used, but those given will do for an ordinary street block.

The two great advantages of this method are economy of lumber and of labor and time, the only loss of lumber being the small pieces cut off at each end to start the bevel. Each two cuts, or rather one cut and one splitting, produces two complete blocks ready for use.

Having thus described our invention, what we desire to secure by letters patent is—

The herein-described method of cutting blocks for wooden pavement, so as to form by two cuts, or one cut and one splitting, two finished blocks with top and bottom level, or in parallel planes, and the sides beveled, one side being inclined with the fiber, and without waste of material, substantially as set forth.

WM. W. BALLARD. [L. S.]
BUREN B. WADDELL. [L. S.]

Witnesses:
E. SHERMAN.
BEN. A. SHEPHERD.

190 "EXHIBIT H." True copy: Albert Harper, Examiner.

T. E. BROWN
vs.
DISTRICT OF COL. } Equity No. 7239, Doc. 20.

The following copy of the original is allowed, by stipulation, to be filed by complainant in evidence in this cause, and the same is so filed and marked "Exhibit H."

ALBERT HARPER, *Examiner.*

This is to certify that the Ballard Pavement Co., composed of W. W. Ballard, T. E. Brown, and E. L. Marsh, have sustained great losses in consequence of the failure of the District of Columbia to perform its contracts with said company and pay said company its just dues, and that the debts of the company, some fifty thousand ($50,000) dollars, have been paid in part and the remainder assumed by said Brown.

Now, therefore, in consideration of the premises, the said Ballard and Marsh hereby assign, transfer, and set over unto the said Brown all of their interest of whatever kind in any of the assets, claims,
191 contracts, suits brought and to be brought, claims for royalty, and damages for infringements of patents, damages for breaches of contract, balances due for work and labor performed, differences between the market value of certificates received by said company and the face value thereof, and any and all other rights, equities, and causes of action against any and all parties whomsoever.

Dated at Washington, D. C., this 20th day of June, A. D. 1874.

(Signed) W. W. BALLARD.
" E. L. MARSH.

192 EXHIBIT "I."

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA, } Equity No. 7239, Doc. 20.

Exhibit "I." Filed by complainant.
ALBERT HARPER, *Examiner.*

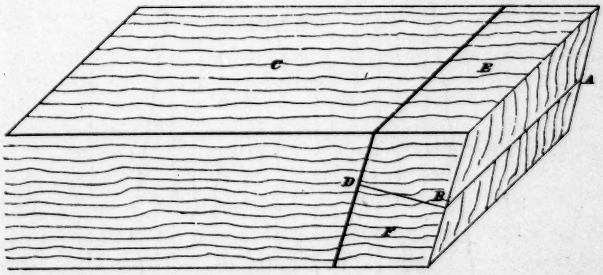


FIGURE 1.

C represents the stick of timber.
E & F the two blocks made by sawing one block into two through the line ABD.

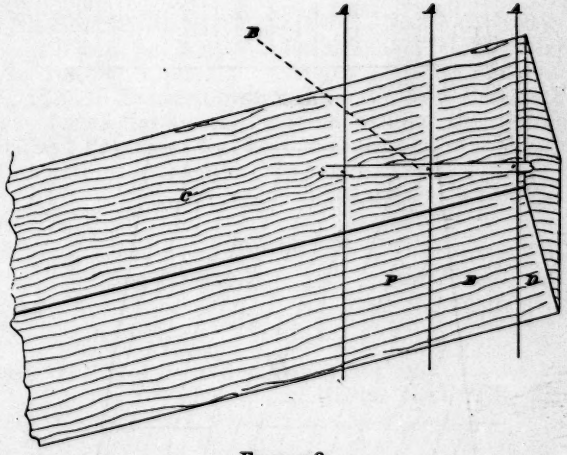


FIGURE 2.

A represents the three saws.
B " " shaft on which the saws are placed.
C " " stick of timber.
D " " wasted wedge at one end.
E & F " " blocks.

193 EXHIBIT K.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Equity No. 7239, Doc. 20.

Exhibit "K," filed by complainant.

ALBERT HARPER, *Examiner.*

Fig. 1.

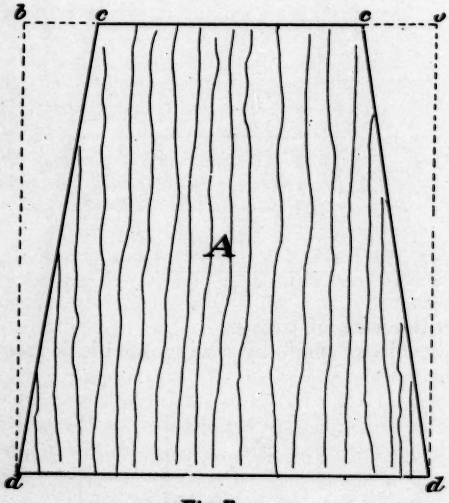
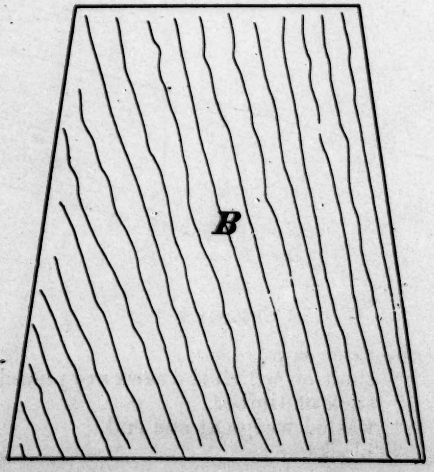
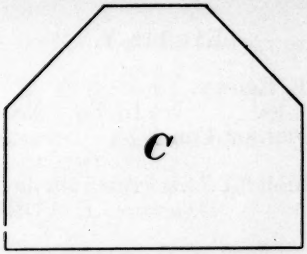


Fig. 2.





194 EXHIBIT "L." Filed by Complainant. Albert Harper, Examiner.

BROWN
vs.
DIST. OF COL. } Eq. No. 7239, Doc. 20.

To the city of ——, State of ——:

The Ballard Pavement Co., having its business office at No. 117 Broadway, N. Y., hereby notify the said city of —— that the said Ballard Pavement Co. are the sole and exclusive owners of wooden pavements of every character and description, constructed of wedge-shaped blocks with wedge-shaped interstices, with and without a wood flooring, as well as the block itself, and the method of making the same. These rights and privileges are secured to the said Ballard Pavement Co. under and by virtue of United States letters patents No. 105,292, No. 94061, No. 94062, No. 94063, and No. 99391, issued each to Wm. W. Ballard, and U. S. letters patent
195 No. 101,590, applied for October 13, 1865, and issued April 5, 1870, to Turner Cowing; and the said Ballard Pavement Co. strictly forbid the use of the same without the written consent of the Ballard Pavement Co., first obtained of the said company or some of its authorized agents.

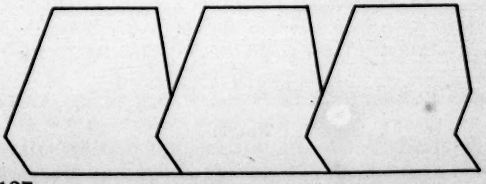
BALLARD PAVEMENT CO.

196 EXHIBIT M.

T. E. BROWN
vs.
DISTRICT OF COLUMBIA. } Eq. No. 7239.

Exhibit "M," filed in evidence in above case.

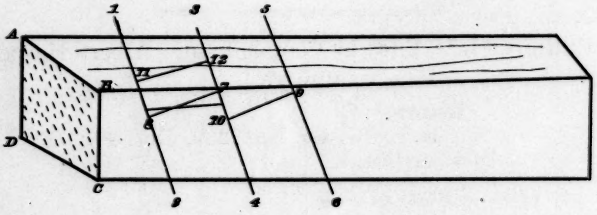
ALBERT HARPER, *Examiner.*



197 EXHIBIT Y.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

Complainant's Exhibit "Y," filed this 14th day of November, 1881.
E. FORREST, *Examiner.*



198 EXHIBIT Z.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. 7239.

Complainant's Exhibit "Z," filed with the examiner this 20 day of October, 1881.

E. FORREST, *Examiner.*

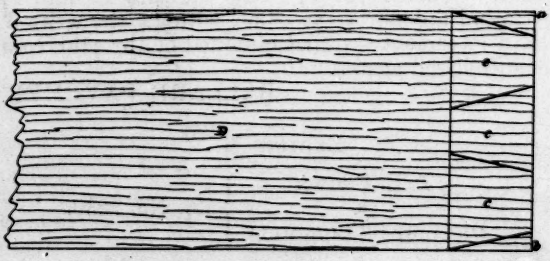


FIG. 1.

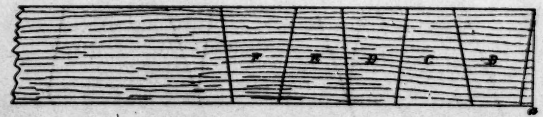


FIG. 2.

199 In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

Testimony and Exhibits on Behalf of the Defendant. Edwin Forrest, Examiner.

200 DISTRICT OF COLUMBIA, *County of Washington,* } *ss:*

In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

Be it remembered that at an examination of witnesses begun and held on the thirteenth day of October, 1881, and continued from time to time, by adjournments as within, until the 14th day of November, 1882, when the hereinafter depositions were taken, I, Edwin Forrest, an examiner in chancery, did cause to be personally present at the office of Marcellus Bailey, No. 501 F street northwest, in the city of Washington, District of Columbia, the hereinafter-named witnesses to testify on behalf of the defendant in the above-entitled cause, with due and sufficient notice to counsel for respective parties.

EDWIN FORREST, *Examiner.*

201 In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

WASHINGTON, D. C.,
THURSDAY, *October* 13, 1881—Eleven (11) o'clock a. m.

Met pursuant to notice.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, solicitor for the defendant.

Whereupon solicitor for the defendant offered in evidence the following documents:

1. Drawing referred to as Defendant's Exhibit No. 1 in the testimony of W. C. McIntyre, a witness for the complainant, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 1.

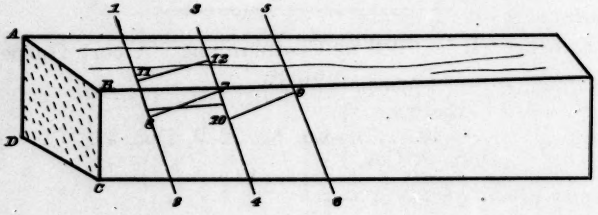
2. A certified copy, under the seal of the United States Patent Office, of the file wrapper and contents and drawing as originally filed in the matter of the application of W. W. Ballard, filed June 16th, 1869, for the wooden street pavement referred to in the testimony

197 EXHIBIT Y.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

Complainant's Exhibit "Y," filed this 14th day of November, 1881.

E. FORREST, *Examiner.*



198 EXHIBIT Z.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. 7239.

Complainant's Exhibit "Z," filed with the examiner this 20 day of October, 1881.

E. FORREST, *Examiner.*

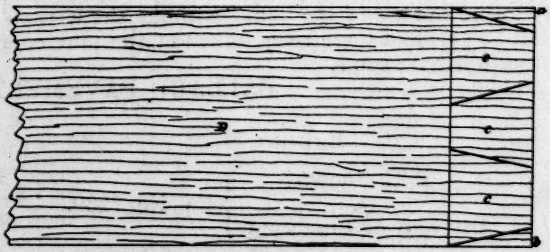


FIG. 1.

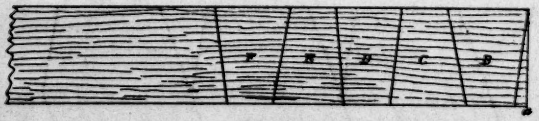


FIG. 2.

199 In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

Testimony and Exhibits on Behalf of the Defendant. Edwin Forrest, Examiner.

200 DISTRICT OF COLUMBIA, *County of Washington,* } *ss:*

In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

Be it remembered that at an examination of witnesses begun and held on the thirteenth day of October, 1881, and continued from time to time, by adjournments as within, until the 14th day of November, 1882, when the hereinafter depositions were taken, I, Edwin Forrest, an examiner in chancery, did cause to be personally present at the office of Marcellus Bailey, No. 501 F street northwest, in the city of Washington, District of Columbia, the hereinafter-named witnesses to testify on behalf of the defendant in the above-entitled cause, with due and sufficient notice to counsel for respective parties.

EDWIN FORREST, *Examiner.*

201 In the Supreme Court of the District of Columbia. In Eq.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

WASHINGTON, D. C.,
THURSDAY, *October* 13, 1881—Eleven (11) o'clock a. m.

Met pursuant to notice.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, solicitor for the defendant.

Whereupon solicitor for the defendant offered in evidence the following documents:

1. Drawing referred to as Defendant's Exhibit No. 1 in the testimony of W. C. McIntyre, a witness for the complainant, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 1.

2. A certified copy, under the seal of the United States Patent Office, of the file wrapper and contents and drawing as originally filed in the matter of the application of W. W. Ballard, filed June 16th, 1869, for the wooden street pavement referred to in the testimony

of W. C. McIntyre, a witness for the complainant, as Defendant's Exhibit D. C. No. 2, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 2.

202 3. A certified copy, under the seal of the Patent Office, of file wrapper and contents of the appeal to the examiners-in-chief, filed July 14th, 1869, in the matter of the application of W. W. Ballard for street pavement, filed June 5th, 1869, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 3.

4. A certified copy, under the seal of the Patent Office, of the file wrapper and contents in the matter of letters patent granted William W. Ballard and Buren B. Woodell August 24th, 1869, No. 94062, for improved wood pavement, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 4.

5. A certified copy, under the seal of the Patent Office, of the file wrapper and contents and drawing as originally filed in the matter of letters patent granted Turner Cowing, assignor, &c., April 5th, 1870, No. 101,590, for improvement in wood pavement, and marked as Defendant's Exhibit D. C. No. 5.

6. A certified copy, under the seal of the Patent Office, of letters patent granted to Miller and Mason March 31st, 1868, No. 76227, for improved wood pavement, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 6.

7. A certified copy, under the seal of the Patent Office, of reissue of letters patent granted Samuel Nicholson August 20th, 1867,

203 No. —, for improved wooden pavement, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 7.

8. A certified copy, under the seal of the Patent Office, from the bound volumes in the library of the Patent Office of the specification and drawing in the matter of the English letters patent granted Richard Hodgson June 27, 1839, No. 8135, for forms of materials for building and paving, &c., and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 8.

9. A certified copy, under the seal of the Patent Office, from the bound volumes in the library of said office of the specification and drawing in the matter of the English letters patent granted John Lindsay June 14, 1825, No. 5185, for construction of roads and — to be used thereon, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 9.

10. A certified copy, under the seal of the Patent Office, from the bound volumes in the library of said office of the specification and drawing in the matter of English letters patent granted Abraham Henry Chambers February 28, 1824, No. 4906, for preparing and paving roads and highways, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 10.

11. A certified copy, under the seal of the Patent Office, of

204 the letters patent granted Matthew J. McBird July 22d, 1856, No. 15380, for improved machine for sawing stone or marble, and the same is placed in evidence and marked Defendant's Exhibit D. C. No. 11.

12. A certified copy, under the seal of the Patent Office, of the letters patent granted C. B. Normand November 14, 1854, No. 11946, for improved method of controlling the log for curve and level sawing, and the same is placed in evidence and marked as Defendant's Exhibit D. C. No. 12.

13. A certified copy, under the seal of the Patent Office, of letters patent granted Pearson Crosby November 3d, 1841, No. 2321, for improvements in the saw-mill for resawing boards and other timber, and the same is placed in evidence and marked Defendant's Exhibit D. C. No. 13.

14. A certified copy, under the seal of the Patent Office, of letters patent granted Henry Millinger April 5, 1864, No. 42212, for improvement in the manufacture of siding, and the same is placed in evidence and marked Defendant's Exhibit D. C. No. 14.

15. A certified copy, under the seal of the Patent Office, of the letters patent granted Hurchmyan, Hurchman and Hurchman June 30th, 1863, No. 39099, for table for reciprocating saws, and the same is placed in evidence and marked Defendant's Exhibit D. C. No. 15.

16. A certified copy, under the seal of the Patent Office, of
205 the letters patent granted the Bordentown Machine Company June 20th, 1865, No. 48349, for improvement in saw mills, and the same is placed in evidence and marked Defendant's Exhibit D. C. No. 16.

The counsel for the complainant objects to the introduction of the following of the foregoing exhibits, to wit, Exhibits —, on the ground that they are not referred to in the defendant's answer.

THOMAS J. W. ROBERTSON, a witness produced on behalf of defendant, being first duly sworn according to law, was examined and testified as follows:

By Mr. BAILEY:

1 Q. State your name, age, residence, and occupation.

A. Thomas J. W. Robertson; forty-eight (48); Washington, D. C.; patent solicitor and mechanical expert.

2 Q. How long have you been so occupied?

A. I have been engaged in the patent business, in some form or other, for twenty-eight (28) years, and for the last fourteen (14) years I have followed my present profession as solicitor, and have acted as an expert for some eight (8) or ten (10) years.

206 3 Q. Have you testified before this as an expert in patent causes in the United States courts? And, if yea, state where and to what extent.

A. I have frequently been called on to testify in such causes and have testified in many different suits and in many different classes of inventions. I have been called on as an expeet by the Department of Justice to testify in several suits brought against officers of the United States Government, and have been called upon to assist in the defence of cases brought against the Erie Railroad Company,

the corporations of the cities of New York and Brooklyn, and also in a number of suits between private parties.

4 Q. State whether you are familiar with the subject of wood pavements and what opportunity you have had of becoming acquainted with that subject, both as regards the production of the wooden block and the laying of the pavements.

A. My first experience with the laying of the pavements, or the first time that I saw such work done, was about 1848 or 1849, when I saw a pavement laid something similar to that shown in drawing No. 7, in Defendant's Exhibit D. C. No. 8, which pavement was laid in High Holborn, London. My next experience was as patent solicitor in examining various patents relating to wood pave-
207 ments. I was at the time in the employ of M. and Company, patent solicitors, and it was my special duty to make preliminary examination for their clients, during which time I made a large number of such examinations on the subject of wood pavements, and probably made more examinations of this class than anybody else, except it may be the official examiner in the Patent Office. I never engaged in the business of laying pavements, but I generally made it my business to notice all pavements that were laid in this city during the time such pavements were being laid here.

5 Q. Have you examined and do you understand letters patent granted Tallmadge E. Brown, assignee of Turner Cowing, April 5th, 1870, No. 101,590, for improvement in wooden pavements?

A. I have and I do.

6 Q. State what you understand to be the subject-matter of said letters patent and to what extent, if at all, the same is novel in the light of exhibits filed in this cause and other facts that may be within your knowledge.

A. On examining said patent I find the claim to be as follows: "A wood pavement composed of blocks, each side having a single plane surface and one or more of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-
208 shaped grooves or spaces to receive concrete or other suitable filling, substantially as set fort." So far as the claim is concerned, it is fully met by the patent shown in Defendant's Exhibit D. C. No. 10, with the exception that the blocks there shown are stone instead of wood.

Figure 3 in the drawing of that exhibit clearly shows blocks having inclined sides, and the specifications describe them as being placed with the larger ends down and with the upper spaces or interstices formed between them filled with powdered or finely broken matter—as broken stone or other insoluble matter, such as what is known as *Pazzalane* or any other cement which will resist the action of water—that is to say, the pavement shown in Defendant's Exhibit D. C. No. 10 was "a pavement composed of blocks, each side having a single plane surface and one or more of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling." This I have given in the words of the claim of the patent

No. 101,590, except that I have left out the word "wood" at the commencement of said claim.

Defendant's Exhibit D. C. No. 9 also shows a pavement formed of wedge-shaped blocks, as may be seen upon examining figure 2 of said exhibit, in which *a* represents the wedge-shaped blocks.
209 These wedge-shaped blocks are represented with the larger ends downwards, so as to leave spaces between them, and in the specifications, on page 4, I find these words: "I lay them with their broadest ends downwards, and, as each stone is made of a wedge form, this leaves a considerable distance open between the stones. These I close with smaller stones of a wedge form, which, being carefully placed and well rammed down, after a sufficient quantity of fine gravel or grout has been worked between them, will make a pavement nearly as substantial as a solid sheet of granite."

From these exhibits it is clearly shown that the idea of making wedge-shaped blocks and laying them with their larger ends downwards, so as to form wedge-shaped grooves or spaces to receive concrete or other filling, was well known at the time of the invention referred to in patent 101,590. The use of wood blocks with filling between was also well known, being shown in the patent of Samuel Nicolson—Defendant's Exhibit D. C. No. 7.

On referring to Defendant's Exhibit D. C. No. 5, which is a copy of the original papers belonging to the application of the patent 101,590, I find this application, as originally filed, shows and claims only blocks for paving streets when constructed with one in-
210 clined side. The drawing filed at the time of said original application only shows one inclined side, the other side being perpendicular or at right angles to the base. This original application and the drawing accompanying it was filed November 13th, 1865, and rejected December 27th, 1865. Nothing was done in the case from that time until May 5th, 1869, when an amendment was made to the papers and the case was again rejected on the ground of being abandoned. Some time afterwards—February 22, 1870—another drawing was filed, which is marked "sheet 2" in said application, and new descriptive matter filed referring to said drawing; which drawing and descriptive matter shows a block, not described or shown in the original papers, and which had been previously shown in a patent granted to Miller and Mason March 31, 1868, nearly two (2) years before the additional papers which I refer to were filed.

In view of the state of the act as shown in the various exhibits, the only novelty that appears in this patent No. 101,590 is the shape of the blocks, as shown in figure 2—that is to say, with one inclined side, as claimed in the specifications originally filed in 1865. The matter referred to, showing and describing the blocks having two (2) inclined sides, was not sworn to by the inventor and was
211 added to the papers more than four (4) years after the original papers were filed and after a patent had been granted showing substantially the same form of blocks—that is to say, a block having two (2) inclined sides. The use of a block with two (2) in-

clined sides is, as I have before stated, clearly shown in figure 3 of Defendant's Exhibit D. C. No. 10. Wooden blocks for pavements are shown in the patent, Defendant's Exhibit D. C., No. 8 and in the Nicolson patent, Defendant's Exhibit D. C. No. 7, the latter having spaces between to receive filling, so that the only novelty in said patent No. 101,590, except the peculiar shape of the block in figure 2, is the substitution of wedge-shaped blocks for wedge-shaped stones, shown in Defendant's Exhibit- D. C. Nos. 9 and 10. The wedge-shaped wood blocks, however, are admitted in said patent No. 101,590 to be old, and that a pavement laid with such blocks was old. This is shown in the paragraph preceding the pre- and claims in these words: "I do not claim a wood pavement composed of wedge-shaped blocks when the blocks are laid alternately on the larger and smaller ends so as to form a continuous surface of wood."

7 Q. Examine the letters patent granted to W. W. Ballard on the 24th day of August, 1869, the one numbered 94062, for im-
212 proved wooden pavements, and the other, No. 94063, for improved method of cutting blocks for wood pavements, and state what you understand to be the subject-matter of said letters patent severally.

A. Patent No. 94062 has two (2) claims. The first covers, as an article of manufacture, "wedge-shape blocks having the grain running parallel to one and oblique to the other of their bevel sides, and produced substantially in the manner referred to." The second claim is to "wooden street pavements constructed, substantially as hereinbefore described, of wedge-shape blocks with the grain running and produced in the manner and for the purposes set forth."

The first of these claims is to an article of manufacture and produced in a certain way—that is to say, in the manner described in the patent No. 94063, which patent was granted on the application referred to in the bottom of the first column of the specifications of the patent 94062. The method described in said patent No. 94063 is forming the paving blocks by cutting them from lumber by means of guides, so as to cut the blocks on certain bevels, which mode of cutting blocks by means of guides arranged to present the timber in such a way that the desired bevel might be obtained was well
213 known at the time said patent was granted. By the method described in the patent a block is produced having two (2) of its sides inclined and with the grain running parallel to one and oblique to the other of the bevel sides, and this peculiar arrangement of the grain is the only difference that there appears to be between the invention described in the Ballard and Woddell patent, 94062, and that described in the Miller and Mason patent of March 31, 1868, Defendant's Exhibit D. C. No. 6, which shows and describes a block having two (2) inclined sides, which block is made in the same manner as the blocks in the Ballard and Woddell patent, 94062.

This difference in the arrangement of the grain is claimed to have certain advantages, one of which is that only one corner of the base is at all likely to become broken off by transportation or rough handling. Another advantage alleged is that the arrangement of

the grain in this manner leaves this wedge-shape space with one side perfectly smooth, so that the gravel will more easily fill into the spaces.

Both of these alleged advantages are practically of no account, because if the blocks are cut with the grain in the manner described in said patent, although one side is not so likely to break off as the other, yet the side that has the grain oblique to it is twice as likely to be broken off as the blocks made in the ordinary way—
214 that is, with the grain vertical—so that the alleged advantage in the matter of breaking off the corners is not gained by cutting the blocks in the manner described, and practically, is such corners are liable to be broken off, they would not extend probably but a short distance along the whole length of the block, so that the blocks could still be laid in the same manner as if the blocks had their original shape.

The other alleged advantage, as to the filling not being so likely to jam, leaving the lower portion of the spaces loosely or entirely unfilled. The effect of the smooth side of one block, if there were such alleged advantage in such smooth side, would be fully recompensed by the additional roughness of the other side. Practically, however, I do not consider that the slight bevel at which these blocks are cut would make any difference as to the roughness or smoothness of the straight grain and the inclined grain sides.

I hold in my hand a block of wood having one side with the grain straight and the other oblique, both sides of which were sawed by the same saw and with equal care, and upon examination of said block it will be seen that there is little or no difference in the roughness of the sides, and that if there is any difference the side having the straight grain is the roughest. I will use this block as
215 an illustration that the alleged advantage as to the corner of the base being broken is not tenable. This block I have taken and endeavored to break off the corner by hammering it against different hard substances, such as an iron bench vise, bricks, and paving stones, and I found that I could not break the corner of said block with any blow that I could give with my whole strength by striking the corner of said block on said hard substances. The arrangement of the grain of this block on the oblique grain side is such that the grain bears the same relation to the side that it does in the Miller and Mason patent, or in those blocks in which the grain is quite perpendicular instead of being slightly inclined, as described in the Ballard and Waodell patent—that is to say, the corners have just as much hold on the block where the grain is oblique to the side as the corners have in the Miller and Mason patent. This will be seen by examining the block where there is a pencil line, showing the angle that such block would have if it were cut fully in accordance with the Ballard and Woodell patent. By following out the line of the grain commencing at about a quarter of an inch from the bottom edge of the oblique grain side of said block it will be seen that such grain terminates about half
216 way up the block, thus showing that the blocks cut with the

grain perfectly vertical have twice as much strength at the corners as those cut according to the Ballard and Woodell patent.

Solicitor for the defendant here offers in evidence the block referred to, and it is accordingly marked Defendant's Exhibit Model D. C. No. 1.

(Witness continuing:) The Miller and Mason patent, which I have before referred to, shows blocks that are essentially the same as the Ballard and Woodell blocks, the only difference being in the arrangement of the grain, which arrangement appears to have no particular function and has no advantages over the arrangement of the grain in the Miller and Mason patent if the grain in the blocks of the Miller and Mason patent were arranged vertical, of which, however, there is no evidence in the drawing.

Patent No. 94063 describes and claims a mode of cutting blocks for making the pavement referred to in the patent 94062. The claim is as follows:

"The herein-described method of cutting blocks for wooden pavements so as to form by two (2) cuts or one cut and one splitting two (2) finished blocks with the top and bottom level or in parallel planes and the sides beveled, one side being inclined to the
217 fibre and without wasting of material, substantially as set forth."

The method described shows simply the cutting of blocks with the timber arranged by inclination so as to make blocks very similar to the blocks shown in the English patent of Robert Hodgson, Defendant's Exhibit D. C. No. 8, and then by subsequent operation cutting each of those blocks into two (2), both of these operations being conducted by means of submitting said blocks in an inclined position to saws, so as to form wedge-shaped blocks having the same form as that shown in the Miller and Mason patent.

Adjournment till to-morrow (Friday, October 14th, 1881) at eleven (11) o'clock a. m.

218 FRIDAY, *October 14th*, 1881—Eleven (11) o'clock a. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, of counsel for the defendant.

Whereupon the further examination of T. J. W. ROBERTSON, a witness produced on behalf of the defendant, was continued as follows:

By Mr. BAILEY:

8 Q. State whether or not before the date of said letters patent 94062 and 94063 the method was known of cutting blocks without waste by first serving by a cross-cut a large block from a long stick or piece and then dividing this large block into two (2) smaller blocks by a splitting cut.

A. It was, and as an instance I refer to Defendant's Exhibit D. C.

No. 11, and more particularly to figure 3, in sheet 3, of the drawing in that case, which shows a block, F, mounted on a table, which block is first cut on the lines *a a' a'*, and then by turning the table a second series of cuts is made by the saws as represented by the lines *b b b*.

By this means several blocks are cut of a shape similar to the blocks made by the first process or cut in the patent No. 94063, and by the second series of cuts these blocks are again divided into two (2), each having two (2) inclined sides. When cut as shown in the
219 drawing, Defendant's Exhibit D. C. No. 11, the blocks are made to taper to a point, but by properly arranging the table these blocks can be made of the same shape as those in the Ballard and Woodell patent, the amount of the inclination of the sides being adjustable to any desired extent.

Solicitor for the complainant objects to so much of the foregoing answer as refers to Defendant's Exhibit D. C. No. 11, because no notice of that patent is given in the answer.

A somewhat similar method of cutting is described in page 764 of volume 2 of Hollzopffel's Turning and Mechanical Manipulation, published in London, 1847, as appears from the imprint on the title page. Figure 743 on that page shows a method of cutting blocks into rhombuses, which are shown separately at "*a*," which blocks can afterwards be divided into 2, so as to make triangular-shaped blocks, such as are shown at "*c*."

9 Q. Please compare letters patent 94062 and 94063 with defendant's exhibits in this cause and state to what extent, if at all, you find the subject-matter of said letters patent in the said exhibits.

A. The patent 94062, as I believe I before stated, shows a block that is in form and material essentially the same as that shown
220 in Defendant's Exhibit D. C. No. 6, Miller and Mason's patent.

The English patent of Lindsley, Defendant'- Exhibit D. C. No. 9, shows a similar form of block, but made of stone. Defendant's Exhibit D. C. No. 10 shows substantially the same form of block, but, like the last, is of stone. All of these blocks are intended to be used in the same manner as the blocks of the Ballard and Woodell patent. I find in the Miller and Mason patent the following sentence: "The blocks can be cut with less waste of material by cutting them from timber and splitting the timber blocks with the proper bevel." This is description in brief of the method employed in cutting the blocks described in the Ballard and Woodell patent, 94063, which mode is employed in cutting the blocks referred to in the patent under consideration, No. 94062.

Blocks cut in the manner referred to would have grains on one side inclined with said side or parallel to it and oblique to the other side, and the idea, therefor-, of making blocks having the grain parallel with one side and oblique to the other is not new with Ballard and Woddell. In respect to the patent 94063, which was granted for a mode of cutting blocks for wooden pavements by means of inclined guides, I find the essential features of the apparatus de-

scribed in said patent to be old, as is shown in several of
221 defendant's exhibits. The only feature wherein the apparatus there shown differs from the ordinary apparatus used in circular-sawing machines is that, instead of having a table parallel with the shaft of the saw or at right angles with the saw itself, it has guides which present the material in an inclined position to the saws. This method of cutting wood by means of inclined guides is very common, and is shown, for instance, in page 762 of the work I have before referred to, volume 2, Hallzapffel's Turning and Mechanical Manipulation, in which figures 740, 741, and 742 show guides designed to be turned any direction, so as to divide wood at any angle that may be desired, as is shown more particularly in figures 740, 741, and 742, in which the double line at the left-hand side of each of those figures represents the saw and the dotted line extending from it represents the cut made by it. Figure 739, on the same page, shows a guide block, marked *g*, which is used in cutting blocks in substantially the same form as the blocks shown in the Ballard and Woddell patent, 94063. The use of such guides is very common and many examples can be found, and as instances I call attention to figure 3 in the patent of Normand, issued in
1854, Defendant's Exhibit D. C. No. 12, which shows a table
222 for use in serving machines which can be adjusted at any angle desired within certain limits by simply turning the screw *v*.

The patent of Hinchman, June 30, 1863, Defendant's Exhibit D. C. No. 15, was granted for a table for reciprocating saws, which table could be adjusted so as to saw blocks at any desired inclination. The patent of Crosby, issued November 3d, 1841, Defendant's Exhibit D. C. No. 13, shows guides which are arranged to present the material to the saw at an inclination, as will be seen by referring to figure 3 of the drawing of said patent, in which *b b b* represent the material being cut and *a a a* the inclined guides for holding the material in an inclined position. The dotted line in said figure is intended to represent the shape of the pieces that will be cut off owing to the inclination of such guides. Besides these references another style of cutting wood with inclined sides is shown in the patent of Wright and Molyneux, issued June 20, 1865, Defendant's Exhibit D. C. No. 16, in which R, figure 1, represents the wood being cut, which in this case lies on a horizontal table, and *g* the saw, which is inclined, which inclination can be varied by means of the apparatus shown in said figure to any desired extent.

The figure 743, on page 764, of volume 2, of Holtzapffel'-
223 Turning and Mechanical Manipulation, which I have before referred to, also shows inclined guides for cutting wood blocks with inclined sides. Defendant's Exhibit D. C. No. 14, which is a patent granted to Millengar, April 5th, 1864, although not showing any apparatus for cutting lumber, describes a method of cutting lumber diagonally so as to form two (2) pieces out of one (1), and making each piece of a tapering form in cross-section.

From these various examples which I have referred to it will be seen that the idea of using guides so as to saw wood at any desired

angle was well known at the time of the issue of the patent to Ballard and Woddell, No. 94063; and a reference to the Defendant's Exhibit D. C. No. 11 shows that as far back as 1856 the idea of cutting blocks crosswise with a cut diagonally to the longitudinal side of said block, as in the first cut described in the patent of Ballard and Woddell No. 94063, was known and a patent granted for the means of cutting such blocks, and that these blocks so cut were afterwards divided by a second cut so as to make wedge-shaped blocks.

Neither of these exhibits that I have referred to clearly shows the arrangement of the grain of the wood in precisely the same arrangement as that shown in the Ballard and Woddell pat-
224 ents Nos. 94062 and 94063. It may be, however, and it is very probable that the paragraph that I have quoted heretofore in this answer from Miller and Mason's patent — that the method they proposed of cutting the timber would leave the grain arranged in the same manner as in the blocks made by the apparatus shown in the Ballard and Woddell patent No. 94063.

But, whether or not the Miller and Mason patent showed and described the same method of cutting the blocks, there would be no invention in cutting the blocks with the grain arranged in the same manner as set forth in the Ballard and Woddell patents, in view of the state of the act as shown in the other exhibits heretofore referred to in this answer, for said exhibits show several different styles of guides for cutting wood at such angles as may be desired, and some of them show methods of cutting blocks into two (2) or more pieces with inclined sides, and with these various guides and modes of sawing being known it would be easy for any mechanic conversant with them to cut wood in any direction desired with respect to the grain and to the shape of the blocks he desired to make. It would not, in my opinion, require anything more than ordinary mechanical skill to cut such blocks with the grain arranged in the
225 same manner as shown in the Ballard and Woddell patent, and would not require invention. A mechanic who wanted to cut out such blocks would naturally so cut them as to avoid waste, and if he wanted the grain in any particular way he would simply take a block of the shape that he wanted to cut and by laying it on a piece of suitable lumber see in which way the wood would cut to the best advantage. This would require simple mechanical skill only and would not, in my opinion, rise to the dignity of invention. Such blocks could be cut in many ways besides that shown in the Ballard and Woddell patent without waste of material. As illustrations of different ways of cutting such blocks without waste, I refer to three (3) sketches which I now produce. No. 1 of these sketches shows a block cut from the end of a stick of timber, which block is afterwards passed through a sawing machine having one (1) saw, *b*, cutting above the block and two (2) saws, *c c*, below the table, so as to cut underneath the block. By this method of proceeding four (4) blocks are produced, each having two (2) inclined sides and the grain parallel to one of the sides and inclined to the other, as in the Ballard and Woddell patents.

Sketch No. 2 shows a method of cutting such blocks by one
226 operation of the machine. In this case two (2) saws are arranged in a machine at suitable angle to each other, one a little in advance of the other, so that the saws will not interfere, and a piece of lumber, *d*, is submitted to the operation of these saws, one of which, marked *e*, first makes a cut in the end of the lumber and the second one, *f*, cuts right through the lumber, thus making the two (2) blocks at one operation. In sketch No. 3 there are three (3) reciprocating saws, marked *g h i*, which in their operation move lengthwise of the lumber, represented by *j*, and make the cuts shown at *k l m*. After these cuts are made the lumber is submitted to the action of another saw, which makes the cut represented by the line *n*, which makes four (4) blocks of the same shape as the blocks in the Ballard and Woddell patent and with the grain arranged in the same way—that is, with the grain parallel with one inclined side and oblique to the other inclined side.

Solicitor for the defendants here offers and puts in evidence the sketches last above referred to, and they are marked Defendant's Exhibit D. C. No. 17.

227 It is hereby stipulated and *argued* between counsel for the respective parties hereto that extracts from Holtzapffel's Turning and Mechanical Manipulation, volume 2, heretofore referred to by the witness testifying, and such extracts certified by the Commissioner of Patents as true copies from said work, may be offered in evidence and filed as exhibits in this cause on behalf of the defendant.

10 Q. Please examine the Defendant's Exhibit D. C. No. 1. In that exhibit figure A represents a block cut from a piece of timber by a square cross-cut and then divided into two (2) blocks by an oblique splitting cut. Figure B in that exhibit represents a block cut from a piece of timber by an oblique cross-cut and then divided into two (2) blocks by a splitting cut at right angles to the base. State whether or not there is any material difference in form and characteristics between the blocks shown in figure A and those shown in figure B in this drawing.

A. There is no material difference in the form. There is, however, a difference in the arrangement of the grain—that is, with the blocks A the grain is vertical, while in the blocks B the grain is inclined. This would have a material difference in the wear of such blocks when laid as a pavement, as it has been found by prac-
228 tical tests that blocks with the grains inclined as in the Ballard and Woddell patent, and as shown in the blocks B, do not wear as long as those which have the grain vertical.

11 Q. I understand, then, that blocks A are better, practically, so far as wear is concerned than blocks B?

A. That is my belief.

12 Q. And that, in proportion as the grain of the block departs from the vertical, its capacity to withstand wear decreases?

Solicitor for the complainant objects to the question as leading.

A. That is the testimony given in the report of D. J. Hope to the Scottish secret'y of arts, as will appear on examining the work in the Patent Office library entitled "The True System of Wood Pavements," published in London and New York in 1877, which appears in the appendix to that work, page 19. I have the book here, and read as follows:

"*The Durability of Fibres and Position of the Blocks.*

"In a masterly report by Mr. D. J. Hope to the Scottish secret'y of arts upon wood paving there appears a table showing the result of a careful examination extending over eighteen months. The pavement blocks 'were laid in the best manner, on the same
229 sort of substratum and on the same line of wood, so that all varieties had the same amount of traffic.' By this careful and crucial test it appeared—

"1st. The vertical fibre blocks during the eighteen months were only diminished in depth between compression and abrasion .125 or $\frac{1}{8}$ of an inch. The blocks at the end of that time were in as good condition as if they had not been exposed to heavy weights and abrasion.

"2nd. The blocks with the fibres leaning at an angle of 75° showed the additional wear of .022 at the end of the eighteen months, which is the fortieth part of an inch more than if they had been vertical. The surface showed a greater abrasion of the soft fibres, and the resinous fibres were slightly pressed to the leaning side.

"3rd. The blocks with fibres at 60° at the end of the first month showed a diminution in depth of .032, nearly double that of vertical. At the end of eighteen months they were diminished .182, which is about $\frac{3}{16}$ of an inch, clearly showing that blocks at that angle must lose $\frac{1}{16}$ of an inch more than vertical blocks.

"4th. The blocks with the fibres at 45° lost rather more at the end of one month than the vertical did at the end of three months, and at the end of eighteen months about double what the vertical sustained."

230 "5th. The blocks with the fibres at 30° lost more in one month than the vertical did in six, and at the end of eighteen months $\frac{3}{16}$ more than the vertical.

"6th. The blocks with the fibres leaning at 15° lost as much in one month as the vertical did in ten, and in eighteen months fell $\frac{3}{8}$ of an inch, being three times more than the vertical.

"7th. The last to be noticed are blocks with the fibres horizontal. For the first month the wear was equal to fifteen (15) months of the vertical, and in eighteen months they lost about half an inch. The fibres were separated to a considerable depth, and the surface had the appearance of a heap of broken strings."

This report I concur in and believe it to be correct, and it agrees with general experience.

In compliance with the request of counsel for the complainant, I read the following, which is a continuation of the report:

"In the able report of Mr. D. T. Hope he says that in order to ascertain the weight which a horse could draw with the same exertion and at the same rate of speed on a macadamized road, on granite, and on wood pavement, he also made a series of experiments, and found the following to be the proportions:

	"On granite pavements	28 cwts.
231	"On a macadamized road	34½ cwts.
	"On wood pavement	50 "

13 Q. State whether or not blocks shown in figures A & B in Defendant's Exhibit D. C. No. 1 are of the same shape as those shown on sheet 1 of the drawing forming part of the Cowing patent No. 101,590, as shown in Exhibit D. C. No. 5.

A. They are.

14 Q. State whether or not the blocks shown in figures A & B, respectively, in Defendant's Exhibit D. C. No. 1 are produced each by a method which involves cutting a block from a piece of timber by a cross-cut and then dividing this block by splitting cut into two (2) wedge-shape blocks.

A. They are.

15 Q. State whether or not in each of the wedge-shaped blocks shown in the figures referred to in said exhibit the grain is parallel with one side and oblique to the other side.

A. It is.

232 Adjourned till to-morrow (Saturday, October 15, 1881) at 11 o'clock a. m.

WASHINGTON, D. C., *October* 15, 1881—11 o'clock a. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, solicitor for the defendant.

Whereupon the direct examination of T. J. W. ROBERTSON, a witness for the defendant, was continued as follows:

By Mr. BAILEY:

16 Q. State whether or not the method of cutting as illustrated in and referred to in figure A of Defendant's Exhibit D. C. No. 1 is materially different from the methods of sawing or cutting timber and other material disclosed in Defendant's Exhibit D. C. Nos. 11, 12, 13, 14, and 16.

A. The method of cutting illustrated in figure A of Defendant's Exhibit D. C. No. 1 is essentially the same as that shown in the Defendant's Exhibits D. C. Nos. 11, 12, 13, 14, and 16. All of these different exhibits show plans of cutting blocks having inclined sides which are cut from pieces of lumber or other material, which are first cut into one form and then by a second or diagonal cut a tapering form is produced. These different exhibits show different ways

in which blocks of wood or other material may be produced
233 with inclined sides, either of which is used according as the shape of the block or the particular purpose to which the lumber or other material is to be applied requires one or the other of such appliances. Whether one apparatus or the other would be used would depend upon the skill and judgment of the mechanic and the use to which the material made by such apparatus is to be applied.

Cross-examination by A. S. WORTHINGTON:

17 Q. Do you agree with the author of the book from which you have just quoted, The True System of Wood Pavements, when he says on page 4: "Granite will assuredly never more be used in paving large towns. It was never intended by the economy of providence that such a material should be employed for such a purpose?"

A. I do not. The book referred to is a book published in the interest of a wood pavement company and the part you have quoted is an extract from matter lauding the pavement of that company, while the extract I have quoted from the appendix of the book is stated to be the result of tests of actual use of wood pavements for eighteen (18) months, and was made to the Scottish Society of Arts by Mr. D. T. Hope.

18 Q. How do you know it was?

234 A. I have only the evidence contained in the book referred to.

19 Q. Can blocks in the form of a truncated wedge, having a fibre vertical when the block is on its base, be made without waste by the method described in the Ballard and Woddell patent, 94063?

A. I do not think they can, if the fibres are to be perfectly vertical and exactly the same system followed as is described in the Ballard and Woddell patents.

20 Q. Can such blocks by that method be cut without waste from ordinary timber, so that in a large number of blocks placed upon their bases the average direction of the fibre will be vertical?

A. I don't think they can.

21 Q. Have you observed that in the Miller and Mason patent, Defendant's Exhibit D. C. No. 6, the blocks of that pavement are ther-in described as "having the fibre vertical?"

A. The — you refer to is in the patent, and I have assumed in some of my answers in the direct examination that the blocks did have the grain vertical, but whether the inventors meant by that — to state that the blocks were perfectly vertical or whether they used the term in a general sense to distinguish them from a pavement in
which the grains of the wood might be horizontal I have no
235 means of knowing, as the drawing does not show any grain of the wood; but in view of the sentence I have quoted before from this patent in my direct examination, which is as follows, "The blocks can be cut with less waste of material by cutting them from timber and splitting the timber blocks with the proper bevel," I think that the grain could not be made perfectly vertical, or, as

you have put it in one of your questions, with "the average direction of the fibre vertical," because with "both sides bevel from top to bottom," as described in said patent of Miller and Mason, I do not think that the blocks could be cut with "less waste of material," as referred to in the sentence I have quoted.

22 Q. Do you mean to say that the word "vertical" in Miller and Mason patent, in view of the phrase which you have quoted from that patent, means that the block covered by that patent *having* the fibre vertical only by accident?

A. I do not. My impression, from a careful study of the patent, is that they use the word "vertical" in a general sense without meaning that the average direction of the grain of most of the blocks when in position was vertical.

23 Q. Then "vertical," you think, means simply not horizontal?

A. I believe it means substantially vertical—that is to say, vertical or nearly so—as it is used in the Miller and Mason patent.

236 Adjourned till Monday, October 17th, 1881, at eleven (11) o'clock a. m.

EDWIN FORREST, *Examiner.*

MONDAY, *October* 17*th*, 1881—Eleven o'clock a. m.

Met pursuant to adjournment and adjourned till to-morrow (Tuesday, October 18th, 1881) at eleven (11) o'clock a. m.

EDWIN FORREST, *Examiner.*

TUESDAY, *October* 18*th*, 1881—Eleven o'clock a. m.

Met pursuant to adjournment and adjourned till to-morrow (Wednesday, October 19th, 1881) at eleven (11) o'clock a. m.

EDWIN FORREST, *Examiner.*

WEDNESDAY, *October* 19, 1881—Eleven (11) o'clock a. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, solicitor for the defendant.

Whereupon the cross-examination of T. J. W. ROBERTSON was resumed as follows:

By A. S. WORTHINGTON, Esq.:

237 24 Q. Suppose a piece of lumber twelve (12) inches wide and seven (7) inches thick, in which the grain is mathematically straight and parallel with the sides of the timber, was cut into blocks twelve (12) inches long, six (6) inches high, three (3) inches wide at the top, and four (4) at the base, in the manner described in the specification of letters patent 94063, Complainant's Exhibit G, what would be the angle of the grain to the base and top in such blocks?

A. It would be about eighty-five (85) degrees.

25 Q. In reference to the English patent of Chambers, Defend-

ant's Exhibit D. C. No. 10, state whether you find in the specifications or drawings there *of* any description of or allusion to a block in the form of a truncated wedge; if so, point out such description or allusion.

A. I do not find any description or any allusion clearly describing the use of a truncated wedge in the specification or drawing of said patent. The drawing only shows three (3) figures, two (2)
238 of which clearly show truncated pyramids, namely, figures 2 and 3, figure 1 being a section which does not clearly show whether the stones there exhibited are truncated wedges or truncated pyramids. I find, however, in the specifications at the bottom of the fifth and top of the sixth page- a statement to the effect that the inventor does not intend to limit himself to the precise form shown and described, but to use for all ordinary pavements "stones broken and hewn in the manner in which they are usually prepared for pavers, but taking care in their application to the said improved pavement or carriage-way always to lay their natural bases or largest ends downward." This might include truncated wedges as well as truncated pyramids.

26 Q. It might also include, might it not, every form of block larger at one end than the other and laid on its larger end to form the pavement?

A. It might.

27 Q. Do I understand you to maintain that after the date of Chambers' patent no solid patent could be granted anybody else for a pavement composed of blocks of any material or of any shape, provided such blocks happened to be larger at one end than the other and laid on their larger ends?

A. I do not wish to be so understood.

239 28 Q. Then please state what you do mean by referring to the language which you have just quoted from Chambers' patent and stating that it might apply to blocks in the form of a truncated wedge when you concede that it might also apply to any form of block larger at one end than the other.

A. The question asked me was if there was any description of or allusion to a block in the form of a truncated wedge. I made the quotation you refer-ed to because it shows that the inventor did not intend to limit himself to the exact form shown, and as truncated wedged-formed stones were doubtless sometimes formed in the ordinary way of hewing stones this might be considered an allusion to their use.

29 Q. In your opinion, would Chambers' patent make invalid a patent subsequently granted for a pavement constructed in the manner described in Chambers' patent, but composed of stone blocks in the form of truncated wedges?

A. It would, as in my opinion there would be no invention in substituting truncated wedged-shaped blocks for truncated
240 pyramidal blocks.

30 Q. Suppose the new patent described blocks in the form of a truncated cone, did Chambers' patent anticipate that, to-, in your opinion?

A. I think it does. It refers on the sixth page to the use of a series of stones of a conical form, which might mean truncated cones.

31 Q. Suppose the new patent described blocks met angular in shape as to one (1) end thereof and in the form of a truncated pyramid as to the other and smaller end. In your opinion, would Chambers' anticipate that, too? Figure *c* of Complainant's Exhibit K illustrates my meaning.

A. If it can be shown that any special advantage is given by the use of such a block over the truncated pyramidal blocks shown in said patent of Chambers there may be something patentable about the use of such a block. A pavement formed of such a block, however, would be different from the truncated wedge-shaped blocks referred to in your other questions, as it would require design to make such a block of stones as referred to in your present question, whereas the truncated wedged-shaped blocks would be a form that would often occur in the ordinary practice of making paving blocks of stone. In fact, the truncated pyramids shown in the Chambers patent are simply truncated wedges with a portion removed from two (2) of the sides.

241

32 Q. Then, suppose that the Cowing application as originally filed, covering a pavement composed of blocks inclined on one side and vertical on the other, had not been anticipated by Chambers or anybody else, would there be any invention in changing that block to one with 2 sides inclined like those described in the Miller and Mason patent in evidence?

A. I don't think there would, because Cowing having shown a block with one side inclined, thereby making a channel to reserve filling and form a foothold for horses, there would, in my opinion, be no invention in duplicating such inclined side or increasing the size of the channel, which would be the result if both sides were made inclined.

242

33 Q. Returning to the Chambers patent, state whether, both in his specifications and in his drawings, Chambers does not everywhere indicate that the pavement which he there claims a patent for is one in which the stone blocks are to be fastened together at the bottom with cement. If you find any indication anywhere that his pavement can be made or used without the cement please point it out.

A. There is no indication in said patent to show if Chambers ever intended to lay a pavement without cementing the bottom of the stones together, and his description seems to indicate that he always intended to cement them together, and in this respect his pavement would be an improvement on those pavements invented since, in which no such cement is used at the basis of the blocks.

243

34 Q. Is it your opinion that Chambers' pavement, composed of blocks made of stone in the form of truncated pyramids cemented together, of itself anticipates a subsequent patent for a pavement of wooden blocks in the form of truncated wedges not fastened together at all, the 2 pavements being in other respects alike?

A. If, at the time such subsequent patent was granted, wedged-

shaped wooden blocks for pavements had been known I should certainly consider said Chambers' patent an anticipation of the subsequent patent referred to, as the question of cementing or not cementing of the blocks together would, in my opinion, have nothing to do with the question of the patentability of the alleged invention described in the subsequent patent, as it would be simply a mere leaving out a part of the invention shown in the earlier patent without any advantage being gained thereby.

35 Q. Suppose that, leaving out the cement, the pavement would be just as durable and much cheaper, would that make any difference in your view?

244 A. Under the circumstances referred to, it would not.

36 Q. Then, I understand, you consider that the cement is an immaterial factor in the Chambers patent. Is that so?

A. I consider the cementing of the basis of the stones together in the manner described in the Chambers patent as immaterial to the pavement, because, if they were not cemented together in the manner described, the subsequent filling in between the interstices of "the said English patent Pozzalane" would cement the basis of the stones together in the same manner as the asphalt and other filling inserted between the blocks of wood pavement cements the basis of said wooden blocks.

37 Q. Do you find anything in the specification or drawings of the Chambers patent to indicate that Chambers himself did not understand and intend the world to understand that the cement was as necessary in the construction of the pavement which he

245 intended to protect by his patent as the stone blocks or the filling? If you find any such thing point it out.

A. Mr. Chambers evidently considered that the cement was an essential part of his invention, but there is nothing in his patent to indicate that a good pavement could not be made without the cementing of the bases of the blocks together in the manner he describes.

38 Q. I repeat the last question.

A. The pavement which Mr. Chambers intended to protect in his patent is evidently a pavement of which the cement was a necessary part—that is to say, as claimed in his patent, and I find nothing in his specifications to indicate the contrary, nor do I find, as I before stated, anything therein stated that would indicate that a good pavement could not be made without first cementing the blocks at their bases before filling in with stone and cement. I do not understand, however, that Mr. Chambers ever intended the

246 world to understand that he thought the cement was as necessary in the construction of his pavement as the stone blocks.

39 Q. Do you find anything in the Chambers patent to indicate to the world that he thought that a good pavement could be made constructed like his, less the cement? If so, point it out.

A. I do not.

40 Q. Has Mr. Chambers shown anything in his specifications or in his drawings tending in the remotest degree to inform the world

that he did not regard the cement just as necessary in the construction of his pavement as his stone blocks or the filling? If so, point it out.

A. I do not know of anything.

41 Q. Have you any doubt that by figure 1 of the drawings annexed to the Chambers patent the inventor meant to give a sectional view of blocks the shape of those shown in figure 3 of the same drawing?

A. I have not.

247 Adjourned till to-morrow (Tuesday, October 20th, 1881) at eleven (11) o'clock a. m.

EDWIN FORREST, *Examiner.*

THURSDAY, *October 20th*, 1881—Eleven (11) o'clock a. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solic-tor for complainant, and Marcellus Bailey, solicitor for defendant.

Whereupon the cross-examination of the witness, T. J. W. ROBERTSON, was resumed as follows:

By A. S. WORTHINGTON:

42 Q. Referring to the English patent of Lindsay (Defendant's Exhibit D. C. No. 9 in this case), what do you understand the inventor to indicate in figure 2 of the drawing annexed to that patent by wedged-shaped spaces marked *b*?

A. Wedged-formed pieces or chips of granite and gravel cemented in the wedged-shaped interstices between the larger stones.

248 43 Q. In your answer to question 31 you say that there may be something patentable, notwithstanding Chambers' patents, in a pavement composed of blocks of the form described in that question, "if it can be shown that any special advantage is given by the use of such a block over the truncated pyramidal blocks." Suppose no such advantage could be shown would Chambers' patent then anticipate such invention, in your opinion?

A. If no special advantage could be shown in the block referred to in the question I should consider Chambers' patent as a substantial anticipation of a pavement formed of such shaped blocks.

44 Q. Then I understand you to think that a pavement composed of blocks larger at one end than the other and laid on their larger ends, no matter what the shape of the blocks might be in other respects, the pavement being otherwise like Chambers', would be anticipated by the Chambers' patent unless the inventor could show some special advantage in the use of his block over those of the

249 truncated pyramidal form?

A. Unless there was some advantage gained by the change of forms of blocks I should consider the Chambers patent to anticipate substantially a pavement formed of any shaped blocks laid with their larger ends downward and constructed in the same manner as the Chambers pavement, or substantially so.

45 Q. Referring to Mr. Bird's patent (Defendant's Exhibit D. C. No. 11), do you find anything therein relating to the sawing of wood?

A. I do not, nor do I find anything therein to indicate that it could not be applied to sawing wood if the inventor so desired. His claim would cover a machine to be used for sawing stone or wood.

46 Q. If Mr. Bird's apparatus were applied to the cutting of a piece of timber into truncated wedges in the manner indicated by him in figure 3 of his drawing (except that the drawing shows perfect wedges) would not the blocks produced have the grain parallel to the base, as indicated by the blocks marked B, C, D, &c., in
250 figure 2 of the exhibit now shown you and marked Complainant's Exhibit Z?

A. If the block shown in the drawing of the patent was intended to represent a block of timber having the grains lengthwise of said block—that is to say, running across the drawing—then the grains of the blocks cut off would have the grain in the same direction shown in figure 2 of Complainant's Exhibit Z. If, however, the block shown in the patent had the grain running crosswise the grain of the blocks would be vertical when such blocks are set on their bases.

47 Q. If the block F in that drawing were a stick of timber would it not be necessary, in order to make the grain vertical, — put the stick on its end, and would not the wedges then produced be the length of the stick of timber?

A. If the block F shown in the patent had its grain running lengthwise—that is to say, parallel with the line nearest the letter F—it would not be necessary to put the block on its end, but
251 simply to turn it around so as to make the saws cut lengthwise of the supposed timber block. The wedged-shaped blocks thus produced would be the length of the original block from which they were sawn, and if instead of the block F, shown in the drawing, a stick of timber was used the wedges would be of the length of the stick.

48 Q. In the Normand patent (Defendant's Exhibit D. C. No. 12) or the Crosby patent (Defendant's Exhibit D. C. No. 13) or the Hinchman patent (Defendant's Exhibit D. C. No. 14) or the Bordentown Machine Company's patent (Defendant's Exhibit D. C. No. 16) do you find anything bearing upon the Ballard and Noddell method covered by their patent in evidence, except the description of machinery by the means of which a piece of wood can be sawed into any shape into which the operator may wish to convert it?

A. I do not, except that these patents referred to show many instances of the use of machinery for cutting blocks at various bevels, thus indicating that at the time of the granting of the
252 Ballard and Noddell patent it was known that the method of cutting wood by holding it in an inclined position on sawing machines as is done in the Ballard and Noddell patent was old.

49 Q. Do you find anything in the Hinchman, Crosby, and Normand patents showing substantially the method of producing two (2) pieces of wood from one, set forth in the patent of Millingar (De-

fendant's Exhibit D. C. 14), as indicated especially by figure 3 of the drawing of that patent?

A. The machinery described in the Normand, Crosby, and Hinchman patents is capable of dividing a piece of wood by a split diagonally in the manner shown by the dotted lines in the figure 3 referred to in the Millingar patent, but is not capable of producing the pieces of wood that is shown in figure 1, which is made by first cutting a piece of lumber into the form shown in full lines in figure 3—that is, with the grooves *a a*—whereby, when the cut is made as shown by dotted lines, pieces of siding are produced that will
253 lie flat upon the studding, as shown in figure 1. This method of producing two (2) pieces of wood of the form shown is not described or shown substantially in the patents referred to in your question—that is, the patents of Hinchman, Crosby, and Normand.

50 Q. Was not the method of making grooves such as those indicated by letters *a a* in figure 3 of the Millengar drawing well known long before 1864?

A. It was.

51 Q. And yet is there not something novel and substantially different from anything before known, so far as the exhibits in this case are concerned, in the result attained by the process described in the Millengar patent?

A. I believe there is.

52 Q. Now, looking at the description given by Holtzopffel on pages 762 and 763, and especially at figure 739, on page 762, would not truncated wedges, produced in the manner there indicated, have the grain of the wood running parallel with the base, as indicated in figure 2 of Complainant's Exhibit Z, assuming that a stick
254 of timber is to be cut into such blocks the hight of which is to be equal to the thickness of the block of the stick?

A. If the stick of timber has its grain running in the usual manner it would be parallel with the base of the cut blocks.

53 Q. In the process described on page 764 and illustrated by figure 743 is there anything to indicate that the author had in mind the production of rhombuses or triangles of wood, for the purpose of supporting a weight or for any purpose except an ornamental one, in which the direction in which the grain of the wood should run would be a matter of no consequence?

A. No, sir.

54 Q. In making a block such as those described in the Miller and Mason patent by the method indicated in figure 1 of Complainant's Exhibit K, would there not be a waste of the two (2) wedged-shaped pieces of wood, *b c d*, for each block made?

A. If made in the manner indicated in said figure, there would.

255 55 Q. If similar blocks were cut from timber in the manner indicated by figure 1 of Complainant's Exhibit Z, would there not be a waste only of two (2) such wedged-shaped pieces for every three (3) blocks produced?

A. There would.

56 Q. And would not this sawing be accomplished and the grain of

the wood remain perpendicular to the base of the block and vertical when the blocks are on their base?

A. It would.

57 Q. Then, why may not this be the method of sawing referred to by Miller and Mason in their patent in the language in which you quoted in your examination-in-chief?

A. Because I think that no one of ordinary common sense and conversant with the state of the act of cutting wood would cut blocks for wooden pavements in the manner indicated by your sketch, figure 1, Exhibit K, as the method indicated in figure 1 of Exhibit Z would be the one that any mechanic of ordinary ability
256 would employ in cutting up wood for pavements, as it would be only necessary to employ the method indicated in figure 739 of Holtzopffel to produce blocks of the form shown in the Miller and Mason patent on blocks cut crosswise from the timber, and it was therefore unnecessary to refer to or describe this plan in the Miller and Mason patent, but the inventors thought it worth while to describe how the blocks could be cut with less waste than ordinarily, and then you referred to the plan of cutting mentioned in the sentence you have referred to.

58 Q. As to your sketches shown in Defendant's Exhibit D. C. No. 17, is figure 1 anything more than an application of what is called the splitting cut in the Ballard and Woddell patent to a block wide enough to make four blocks instead of two, as shown in the drawings of that patent, figure 3?

A. Figure 1 of my sketch shows a method of forming blocks of the same form as the Ballard and Woddell blocks, but differs from the method employed in dispensing with the preliminary
257 cutting of the lumber into pieces of seven (7) inches thick, as described in the Ballard and Woddell patent, and also saves handling of the blocks, as four (4) blocks are cut out of one.

59 Q. Is there any other difference which you consider material?

A. I don't know of any.

60 Q. In figure 2 of your sketch, is the cut made by the saw to be made before or after or at the same time with the cut made by the saw?

A. The cutting is intended to be made simultaneously, but the saw- should be so set as not to interfere with each other.

61 Q. Are those saws supposed to be movable?

A. It will be necessary that the axis of one of the saws should be adjustiable.

62 Q. Why?

A. Because the saw would wear and would become smaller in sharpening, and then would not cut sufficiently deep into the block to make the cut made by the saw.

63 Q. I should like you to give me a sketch showing in
258 prospective what you have given a sectional view of in figure 2 of your sketch?

A. I shall bring such a sketch in the morning.

Adjourned till to-morrow (Friday, October 21, 1881) at eleven (11) o'clock a. m.

EDWIN FORREST, *Examiner.*

FRIDAY, *October* 21*st*, 1881—Eleven (11) o'clock a. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solicitor for the complainants, and Marcellus Bailey, solicitor for the defendant.

Whereupon T. J. W. ROBERTSON, the witness on part of defendants, was further cross-examined as follows:

By A. S. WORTHINGTON:

WITNESS: I produce the sketch you asked for in your last question and the same is marked as Defendant's Exhibit D. C. No. 18.

259 Redirect examination by MARCELLUS BAILEY:

64 Q. Referring to your answer to 57th cross-question, please explain more fully.

A. As I understood that question, it referred to the formation of blocks in the manner referred to in cross-question 56—that is, with the grain of the wood perpendicular to the base of the block and vertical when the blocks are on their base, or as nearly perpendicular as such blocks can be cut, by first cutting blocks at right angles to the length of the timber. With this understanding of the question I believe that a mechanic of ordinary skill would adopt some such plan as that indicated in figure 1 of Complainant's Exhibit Z or that shown in Holtzapffel, which I have before refused to, rather than the wasteful method illustrated in figure 1 of Complainant's Exhibit K—that is to say, provided said mechanic could procure timber suitable for cutting such blocks in that manner and thought it necessary to make the grain mathematically vertical.

260 I do not wish to be understood, however, as saying that under all circumstances a mechanic would pursue this method of cutting paving blocks.

As I have heretofore stated, I do not consider the Miller and Mason patent to be limited to the use of blocks having the grain mathematically vertical or with the majority of the blocks having the grain vertical, nor do I think that they intended to so limit themselves as to the direction of the grain of the block, but that they intended in the quotation I have heretofore made to refer to a method in which the wood was cut so as to save as much of the wood as possible by cutting the blocks at the proper angle, and then recutting the blocks by some such method as that indicated by Mr. Bird. Either of the plans referred to would be within the knowledge of an ordinary mechanic, and would be used according as circumstances would require. If he wanted to cut the wood with the grain

261 in the blocks vertical, or as nearly so as he could make them by first making a cross-cut at right angles to the stick and then dividing the blocks, he would be likely to adopt some such

plan as that shown in figure 1 of Complainant's Exhibit Z. If, however, he did not feel himself limited to the exact direction of the grain so long as it was substantially vertical, and wanted to save all the material he could by cutting it to the best advantage, he would adopt the other method, whereby all the waste caused by the plan illustrates in figure 1 of Complainant's Exhibit Z would be saved, excepting a small piece cut off at each end of the stick.

65 Q. Referring to the pavement shown and described in the Chambers patent (Defendant's Exhibit D. C. No. 10), you have stated, I believe, that you there find a pavement composed of blocks, each side having a single plane surface and one or more of the sides being inclined and the blocks being so laid on their larger ends as to form wedged-shaped grooves or spaces to receive concrete
262 or other suitable filling. Does the fact that the blocks in the Chambers pavement are laid in or on a cement bed or foundation modify or change these characteristics of said pavement?

Solicitor for the complainants objects to said question as being examination-in-chief, and because there is nothing to be found in the Chambers patent in reference to laying his blocks on a bed of cement.

A. It does not.

66 Q. Referring to the pavement shown and described in Lindsay's letters patent (Defendant's Exhibit D. C. No. 9), you have stated, I believe, that you there find a pavement composed of wedged-shaped blocks laid upon their larger ends in such manner as to leave between them wedged-shaped spaces for the reception of filling material. Does the fact that the filling shown by Lindsay consists of wedged-formed pieces or chips of granite and gravel cemented in the wedged-shaped spaces between the blocks, as
263 stated in your answer to the 42d cross-question, modify or change these characteristics of the pavement?

A. It does not, as the essential characteristics remain unchanged by the character of the filling.

67 Q. In the Lindsay patent are the wedged-shaped paving blocks laid so that the lower ends of opposite blocks in adjoining rows shall be in contact?

Solicitor for the complainant objects to the question as being examination-in-chief.

A. They are.

68 Q. What is the function of the cemented granite and gravel filling in the wedged-shaped spaces thus formed between the blocks?

Solicitor for the complain-t objects to the question because it implies that under Lindsay's patent gravel may be used in place of the wedged-shaped blocks which fill the spaces between the larger
264 blocks, whereas there is nothing in that patent to justify that assumption.

A. It cements the blocks together and holds them in place.

69 Q. Suppose that in the Lindsay pavement, in lieu of the com-

posite filling mentioned in his patent grant, or, in other words, cement alone were used as a filling, state whether or not the filling last referred to would act in substantially the same way and have substantially the same functions as a composite filling.

A. It would.

70 Q. Suppose that in lieu of the composite filling described in the Lindsay patent the filling in the Lindsay pavement be composed of earth and gravel ground into the spaces between the blocks, would not this filling have the same function and would it not act in the same way as the composite filling?

A. It would hold the blocks in place and fill up the interstices, and would, to a certain extent, act as a cement, but not to the extent as the granting referred to in said patent.

265 —. State whether or not both the cement and the earth and gravel fillings were not known fillings for pavements at the date of the application on which the Cowing patent, No. 101,590, was granted.

A. They were.

72 Q. Would it, in your judgment, involve more then ordinary mechanical knowledge and skill to substitute for the composite filling described by Lindsay either one of the fillings referred to in the preceding question?

A. It would not.

Solicitor for the complainants objects to the whole of this so-called redirect examination on the ground that it was properly examination-in-chief.

Recross-examination by A. S. WORTHINGTON:

73 Q. In your redirect examination, when speaking of the Lindsay pavement, you refer, I presume, to that part of his pavement indicated in the drawings attached to his patent indicated in figure 1 thereof by the letters D and the corresponding parts in figure 2; am I right?

266 A. You are.

74 Q. As you view these things, is not that pavement substantially the same as that described and patented by Chamers in his patent in evidence?

A. It is. There are minor differences in the construction, but so far as the pavement referred to in figures 1 and 2 of the Lindsay patent in concerned I consider that the Chambers patent is a substantial anticipation of the features shown in the portion marked D in those figures, as there would appear to be no invention in substituting the truncated wedged-formed blocks for the truncated pyramidal blocks of the Lindsay patent or in the use of the Lindsay filling for that described by Chambers.

75 Q. In your view, is not the pavement described in the Miller and Mason patent also substantially the same as that covered by the Chambers patent?

A. The only essential difference that I can see between the two pavements is that one is of wood and the other of stone, but wedged-

shaped wooden blocks having been known before the invention of the Miller and Mason pavement I do not think that it would
267 require invention to substitute one for the other, and I therefore think that so far as patentability is concerned the Chambers patent anticipates the Miller and Mason patent.

76 Q. Was not the use of rectangular blocks in pavements with the filling of some kind between the blocks known many years before the date of the Meloeson patent in evidence?

A. I believe it was—that is, substantially rectangular blocks.

77 Q. Then, in your opinion, is there anything novel, "rising to the dignity of invention," in the pavement covered by the first and second claims of the Meolson patent (Defendant's Exhibit D. C. No. 7)?

A. The Meolson patent, as I understand it, does not cover simply the use of rectangular blocks with filling between, but the pavement referred to and covered by the first and second claims of the Nicolson patent has something in it that was new, so far as I know, at the time said patent was granted—that is, a continuous foundation or support laid upon the ordinary roadway upon which a
268 series of blocks having parallel sides were arranged with spaces between them for the filling of such a width as to produce regular rows of wooden blocks and filling, as shown more particularly in figure 3 of the Nicolson patent. This method of laying pavements had considerable novelty in it, and I think it may be said to have risen to the dignity of an invention, although I must admit that it was not a very great one.

78 Q. If, in 1824, constructing pavements of rectangular blocks with gravel or other filling between the blocks was old, would there, in your opinion, have been any invention in devising a pavement precisely of the same character, with the exception of making the blocks in the form of truncated wedges?

A. I think there would have been some invention, but not much.

79 Q. Even if the latter pavement could not be shown to have any special advantage over the former?

A. As I understand the pavement you referred to, there
269 would be an advantage in the change made, which advantage implies some design in making it. The designing of this change in the pavement to accomplish the advantage which I have referred to would, in my opinion, be an invention.

80 Q. I think you have not answered my question. I want to assume that the truncated wedge form of block has no advantage of any kind in use over the rectangular.

A. In that case I think it would be a mere incidental change of form in the blocks, and would not be an invention as understood in patent law.

81 Q. Then if, prior to Chambers making application for his patent, pavement had been constructed with rectangular stone blocks laid with interstices between them filled with gravel or other similar substances there would be nothing in his pavement constituting novelty and invention in them — the meaning of our patent law,

unless he could show that his pavement would be a better
270 pavement than such old pavement. Is that your opinion?

Solicitor for the defendant objects to the question on the ground that it is incompetent.

A. There would be novelty in the Chambers pavement, but in my understanding of the patent law there would be no invention unless there was some advantage in the change made.

82 Q. In the case supposed in the last question would there be in Chambers' patent anything rising to the dignity of invention, in the sense in which you have used that phrase in your examination-in-chief?

A. I do not think that a mere change in the form of the blocks or the addition of the cement in the pavement, without some advantage to be gained thereby, would rise to the dignity of an invention.

83 Q. I should like to have a direct answer to the last interrogatory.

A. I have already answered several times that without some advantage being gained by a change I do not think that there is any invention in a mere change, and I therefore answered no.

T. J. W. ROBERTSON.

271 ELLIS SPEAR, a witness produced on behalf of defendants, having been first duly sworn according to law, was examined, and testified as follows:

By MARCELLUS BAILEY, Esq.:

1 Q. State your name, age, residence, and occupation.

A. Ellis Spear; patent attorney; forty-seven (47); Washington, D. C.

2 Q. Were you formerly Commissioner of Patents?

A. I was.

3 Q. What was your occupation in the year 1869?

A. I was examiner in the class of railway and civil engineering in the Patent Office.

4 Q. Were you in charge of that class?

A. I was.

5 Q. Had your charge of application- for patents for pavements, particularly road pavement, as a part of that class?

A. I had charge of all application- for patents for wood pavements.

6 Q. Examine Defendant's Exhibit D. C. No. 2 and state whether, in your capacity as examiner, you examined the application of which said exhibit is a certified copy.

272 A. I did examine the application of which this is a certified copy.

7 Q. Are you the same Ellis Spear whose name appears in said exhibit?

A. I am.

8 Q. Examine, if you please, Defendant's Exhibit D. C. No. 3, which is a certified copy, under the seal of the Patent Office, of the file wrapper and contents of the appeal to the examiners-in-chief, filed July 14, 1869, in the matter of the application of W. W. Ballard for street pavement, filed June 13th, 1869, and state in what manner, if at all, said Exhibit D. C. No. 3 is connected with or bears upon Exhibit D. C. No. 2.

A. Exhibit No. 3 is a copy of the appeal to the board of examiners-in-chief from the decision of the examiner in the matter of the application of which Defendant's Exhibit D. C. No. 2 is a certified copy, and the Exhibit D. C. No. 3 also contains a copy of the decision of the examiners and the record of their action, to wit, affirming the decision of the examiner on that application, with suggestions relating to the invention.

9 Q. Please examine Defendant's Exhibit D. C. No. 4, which
273 is a certified copy, under the seal of the Patent Office, of the file wrapper and contents in the matter of the letters patent granted to W. W. Ballard and Buren B. Woddell, assigning his right to W. W. Ballard, August 24th, 1869, No. 94062, for improved wood pavement, and state whether or not you, in your capacity of examiner, examined and acted on the case of which said exhibit is a certified copy.

A. I did examine and act upon this case.

10 Q. On page 10 of Defendant's Exhibit D. C. No. 4 I find the following memorandum: "The decision of the board of examiners-in-chief in this case may be found in the abandoned case of Ballard, filed June 15, 1869." Please explain what is meant by this memorandum and who made it, if you know.

A. I made it. I did so in view of the fact that in my judgment the opinion expressed by the board in their decision (Defendant's Exhibit D. C. No. 3), on the appeal in the case represented by Defendant's Exhibit D. C. No. 2, covered the claim made in the application represented by Defendant's Exhibit D. C. No. 4 and satisfied me that in their opinion such a claim should be allowed.

10½ Q. On page 12 of Defendant's Exhibit D. C. No. 4 I
274 find the following: "Examined August 9th, 1869, examiners-in-chief." Please explain what is meant by the language quoted and who made the entry in question, if you know.

A. I made the entry, of which this is a copy, acting in my capacity as examiner. It was customary to make such an entry upon the file wrapper and contents of papers in the application for a patent and to enter opposite the word "examined" printed on said file wrapper the date of the allowance of the application and the authority for such allowance. In case the application was allowed by me as examiner I would write my own name on the line with the word "examined." In case the application was allowed by authority of the board of examiners-in-chief or the Commissioner the entry would be made accordingly, examiners-in-chief or Commissioner. In this case, acting under the authority of the board of examiners-in-chief, as appears in their opinion in Exhibit No. 3, I wrote the words "examiners-in-chief" to indicate that it was upon

their authority and not upon my own that the application was allowed.

275 11 Q. Would you have made the entry in question had you not understood the specification and claim of application, Defendant's Exhibit D. C. No. 4, to be drawn to conform with the opinion of the board of examiners-in-chief, as expressed in Defendant's Exhibit D. C. No. 3?

A. I would not.

Solicitor for the complainant objects to each and every part of the foregoing deposition, and especially to the eleventh question and answer thereto, upon the ground that it is incompetent evidence, being an attempt to collaterally attack the proceedings in the Patent Office which resulted in the issuing of a patent to Ballard and Woddell, No. 94062, Complainant's Exhibit D.

The above deposition having been taken in the absence of the solicitor for the complainant with his consent, with the understanding that objection could subsequently be made effectually, solicitor for the defendant agrees that the foregoing objection to the deposition of Spears is seasonably made.

ELLIS SPEAR.

276 Adjourned till Tuesday, October 25th, 1881, at eleven (11) o'clock a. m.

TUESDAY, *October 25th*, 1881—11 o'clock a. m.

Met pursuant to adjournment and adjourned till Thursday, Oct. 27, 1881, at eleven (11) o'clock a. m.

EDWIN FORREST, *Examiner.*

THURSDAY, *October 27th*, 1881—Eleven (11) o'clock a. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, solicitor for the defendant.

Whereupon N. C. DRAPER, a witness produced on behalf of defendant, being duly sworn according to law, was examined, and testified as follows:

By MARCELLUS BAILEY, Esq.:

1 Q. Give your name, age, residence, and occupation.

A. N. C. Draper; fifty-three (53) years; Washington, D. C.; carpenter by trade, but have been running machinery for thirty

277 (30) odd years—planing-mill and saw-mill combined.

2 Q. Have you in your business had occasion to produce wooden blocks to be used in laying street pavements?

A. I have.

3 Q. When first did you make such blocks?

A. To the best of my recollection it was '72 and '73 and along later than that.

4 Q. What kind of wooden paving blocks did you first manufacture?

A. I manufactured a block called the Pollonsbee block.

5 Q. What kind of a block was that?

A. It was a block which was worked on a bevel after being cut off a square block of timber. It was cut square first; then the edges of it were bevelled off this way. It was cut off from a plank three (3) to four (4) inches long and running from 10 to sixteen (16) inches wide.

6 Q. Then you state that the edges were bevelled?

A. Yes; in order to give a chance to drive an inch wedge down.

7 Q. Did you manufacture what was known as the bevelled or wedged-shaped wooden block?

A. Yes, sir.

278 8 Q. When did you make such blocks as those last referred to?

A. I made them during those years that I spoke of—in 1873 & 1875 and later. I could not state exactly what year I made them.

9 Q. For whom did you make them?

A. I made them for different parties. I cut some for Mr. Daniel Smith and for Zephaniah Jones, and I cut some for Taylor and Filbert, if I remember aright, and for different parties that I cannot recollect the name- of. There were so many that I worked for that I could not possibly tell their names.

10 Q. State what was the shape and what were the dimensions of these wedged-shaped or bevelled blocks.

A. They were cut of timber seven inches thick and of various widths and five (5) inches long, and were cut on a bevel.

11 Q. I want to know first the shape of the paving block.

A. The shape of the paving block was four (4) inches on one end and three (3) on the other, and one side bevel and the other side straight.

12 Q. You mean the block was 4 (four) inches long at one end and three (3) inches long at the other?

279 A. Yes, sir.

13 Q. Which end was the base of the block?

A. The four (4) inch end.

14 Q. And what was the height of the block.

A. The blocks were of various lengths.

15 Q. Now explain in what manner you produce wooden paving blocks of this shape.

A. I cross-cut my timber, in the first place, on an inclined plaine running up towards the saws; they were *sawinging* saws, and I had from three (3) to four (4). I brought them up to the timber, and each piece was cut off of the required length on a beval. The blocks, as they were thus cut off, were five (5) inches long and the width of the timber. I took those blocks from my cross-cut saw and put them on a regular rip-saw table, and I made one straight cut through while these were set on their bevel end on a bevel table, making the block of the size I stated—three (3) inches on one end and four (4) inches on the other.

16 Q. How many blocks did you get from each?

280 A. Two (2) bevels out of each piece.

17 Q. I understand, then, that you set each block produced by cross-cut upon a horizontal table with one of its cross-ends on a table, and splitting it through with a vertical saw, each side at right angles to the tables, so as to make from that block two (2) wedged-shaped blocks three (3) inches long at one end and four (4) inches long at the other?

A. That is so.

18 Q. Did any one instruct you how to proceed in order to cut these blocks in the way indicated by you?

A. No one instructed me.

19 Q. Who got up the machinery for cutting?

A. I devised that way of cutting it myself, and any practical man would do the same thing.

20 Q. Was that the first time that you had cut timber in that way?

A. It was the first time that I ever cut any wooden pavements, but I have cut a wedged-shaped block at various times.

21 Q. How long before?

A. Well, I should judge it was ten (10) years before, and perhaps longer. I could not say positively.

281 22 Q. State whether or not it was not usual at that time in your business to cut wedged-shaped blocks for various purposes by first cutting a block by a cross-cut from that piece of timber and then splitting that block by a saw so as to divide it into two (2) wedged-shape blocks.

Solicitor for the complainant objects to the question as leading.

A. It was the usual thing in my business.

23 Q. How long at that time had you known and used this method of producing wedged-shaped blocks?

A. I had been cutting wedged-shaped blocks in that manner for thirty (30) years or more.

24 Q. Did I understand you to say that in cutting these wedged-shaped paving blocks during the years 1872, 1873, and subsequently you made the splitting cut—that is to say, the cut which divided the bevelled cross-cut blocks into two (2) equal wedged-

282 shaped blocks—by means of the vertical saw which stood at right angles to the bed of the table on which the block to be cut was placed?

A. The saws stood precisely as you have stated.

25 Q. Examine figure 3 of Defendant's Exhibit D. C. No. 1, and state whether or not the line marked 1 2 in that figure indicates the direction of the splitting cut made by you in the manufacture of these paving blocks. The line 1 2 is supposed to be vertical and at right angles with the base of the block shown in the figure.

A. This cut here, marked 1 2, represents the cut made by my saw on a block cut on a table as you have above described.

26 Q. When did you cut these wedged-shaped blocks in the year 1872, '3, and subsequently, as you have stated?

A. I had during those years two (2) establishments, one at Bailey's wharf, at the foot of South Capitol street, and the other mill was at the corner of C street, Thirteenth and Ohio avenue northwest.

283 27 Q. Were the wedged-shaped blocks manufactured by you produced in the same way at both of your establishments?

A. They were.

28 Q. Do you know Daniel N. Row, a witness on behalf of the complainant in this cause?

A. I do.

29 Q. Was Mr. Row employed by you at either one of your establishments during the years 1872 and 1873 and subsequently?

A. He never was employed by me.

30 Q. Was he at either one of your establishments during the time you were manufactoring wedged-shaped paving blocks? If so, at which establishment and in what capacity?

A. He was at the establishment on Bailey's wharf, employed by Mr. Smith, Zephaniah Jones, and others, taking charge in measuring lumber and inspecting it.

31 Q. Had he anything to do with super-endining the making of the wedged-shaped paving blocks or the machinery used in their manufacture?

A. He had nothing to do with it.

284 32 Q. In whose charge was that, superintending the making of the blocks and running of the machinery?

A. I superintended the making of the blocks; had a foreman there who took charge during my absence.

33 Q. Mr. Row, in describing the manner of making the wedged-shaped blocks which were manufactured at your establishment at Bailey's wharf, says they were made out of timber and the timber ran up was slanting, that gave this bevel; then the splitting saws were also set on a table with a bevel; that was split slanting through. One piece would then make two blocks. Is that statement correct?

A. I am positive that he is not correct in that statement.

34 Q. In what respect is that statement incorrect?

A. In regard to the blocks being put on a bevel table for the purpose of splitting them after they were first cut from the timber on a bevel.

285 35 Q. State again, please, specifically how the table or bed on which the blocks rested stood. State that relation to the splitting saw.

A. The table was level, while the saw stood vertical, with a fence beside the saw to guide the thickness of my blocks.

36 Q. What do you mean by the table being level?

A. The saw on the table stood horizontal.

37 Q. And the wedged-shaped blocks made on that table had one inclined side and one vertical side. Is that so?

A. That was the shape of the block when cut.

38 Q. Did you ever cut wedged-shaped paving blocks having both sides inclined to the base?

A. I have.

39 Q. When?

A. As nearly as I can recollect, it was 1865 or 1866; in that neighborhood.

40 Q. For whom did you cut them?

A. I cut them for a man by the name of Geolthright. He was then working at the arsenal.

41 Q. In this city?

A. Yes, sir; at the Washington arsenal.

286 42 Q. For what purpose were these blocks indented, if you know?

A. I could not tell what he used them for, but he brought me a drawing of the wedge, and asked me if I could make some of that shape. I cut them as was required. They were used in something about the arsenal at the time they were building gun-cru-ches, and they were also putting up forts. What these blocks were used for I cannot say.

43 Q. What were the dimensions of the blocks?

A. They were about an inch at one end, some two (2) inches at the other, and running from three (3) to four (4) inches in width.

44 Q. How high?

A. They were about some seven (7) or eight (8) inches in length, to the best of my belief and recollection.

45 Q. State, if you please, how you manufactured these wedged-shaped blocks having two (2) inclined sides.

A. In the first place, I shoved the piece of timber up to my saw on an inclined bed, and made a cross-cut in order to get the

287 length of the wedge; then splitting the wedge in order to get the two (2) wedges; then giving them a bevel on each side, as was required by the drawing, by raising one side of the saw table, throwing that table on a bevel from the saw, and that gave a proper shape to the block, so that the block was not square only from the center.

46 Q. Will you please make a sketch illustrating the manner in which you made these wedged-shaped blocks with two (2) inclined sides?

A. I have made the sketch and here produce it.

Solicitor for the defendant offers and places in evidence the sketch last referred to, and the same is marked Defendant's Exhibit D. C. No. 20.

WITNESS: The figures 1 2 in the exhibit last referred to and marked Defendant's Exhibit D. C. No. 20 represent the cross-cuts, and 3 4 represent the splitting of the block to make the two

288 (2) wedges, and the shaded lines running lengthwise represent the grain of the wood.

47 Q. As nearly as you recollect, what were the dimensions of the wedged-shaped block made in the way illustrated in the exhibit?

A. One (1) inch at the smaller end and two (2) inches at the larger end.

48 Q. And how long?

A. They averaged from six (6) to seven (7) inches in length.

49 Q. State whether or not, at the time you made the wedged-shaped blocks such as illustrated in Defendant's Exhibit D. C. No. 20, it had not been customary for you to produce wedged-shaped blocks from a piece of timber with two (2) inclined sides in the manner illustrated in said exhibit.

Solicitor for the complainant objects to the question as leading.

A. I have been cutting blocks of that description and in that manner for years, before and since.

289 50 Q. Examine Complainant's Exhibit Model D and state whether or not you ever cut any wooden paveing blocks of that shape.

A. I do not think I ever cut any blocks of that shape for wooden pavements. After the blocks were cut they were nearly of that shape, but had no straight side; they had one inclined side instead of having two (2) inclined sides.

Cross-examination by A. S. WORTHINGTON:

51 Q. You say Mr. Wright was the name of the gentleman for whom you cut the wedged-shaped blocks to be used at the arsenal in 1865?

A. He was the gentleman, and was employed at the arsenal and represented himself as a kind of foreman or superintendent of certain works.

52 Q. Was he in Government employ?

A. He was under Government employ.

53 Q. Do you know what has become of him?

290 A. I do not know what has become of him. I know that he is dead.

54 Q. When did he die?

A. I could not say what year he died. but it has not been very many years ago. I do not think that it has been more than two (2) or three (3). He died, I think, at Norfolk. I think he was under Government employment at the time.

55 Q. Can you state from memory the dimensions—that is, the width and the thickness—of the plank which you used in making the wedges, as illustrated in Defendant's Exhibit D. C. No. 20?

A. The plank was three (3) inches long, about four (4) inches wide, and the plank running four (4) to eight (8) or ten (10) feet long.

56 Q. Do you know for what purpose any of these blocks were used that were made for Mr. Wright?

A. I do not know for what purpose they were used, but they were made out of hard wood, supposing that they had to be used for some purpose where it required strength.

291 Adjourned till notice.

THURSDAY, *November* 10, 1881—Eleven o'clock a. m.

Met pursuant to notice and adjourned till Saturday, November 12, 1881, at three (3) o'clock p. m.

E. FORREST, *Examiner.*

SATURDAY, *November* 12, 1881—Three o'clock p. m.

Met pursuant to adjournment and adjourned till Monday, November 14th, 1881, at 2.30 p. m.

E. FORREST, *Examiner*.

MONDAY, *November* 14*th*, 1881—2.30 p. m.

Met pursuant to adjournment.

Present: A. S. Worthington, solicitor for the complainant, and Marcellus Bailey, solicitor for the defendant.

Whereupon the cross-examination of N. C. DRAPER, a witness on behalf of defendant, was resumed as follows:

292 By A. S. WORTHINGTON:

57 Q. Referring to your testimony-in-chief as to the truncated wedged-shaped blocks made by you for Geothright about 1865, I should like you to tell me who was your foreman at the time.

A. I had no foreman at the time. I only had a partner.

58 Q. Who was your partner?

A. Jonah C. Truman.

59 Q. Is he still living?

A. No, sir; he is dead, and has been for four (4) years—no, five (5) years.

60 Q. How many workmen did you have in your employ at the time you had anything to do with the cutting of these blocks for Wright?

A. At the time I had, I suppose, some ten (10) or fifteen (15) men in my employ—that is, at different kinds of work. I do not know that there were more than two (2) or three (3) who had anything to do with the cutting of the blocks.

61 Q. Do you remember who they were?

293 A. Indeed, I could not tell you one of them positively. One man, I believe, I can remember distinctly we had at work. I believe his name is John Boswell.

62 Q. Is he living?

A. Yes, sir.

63 Q. Where?

A. He is living in Minnesota. He was a brother-in-law of my partner.

64 Q. In what part of Minnesota is he living? Give me his address, if you can.

A. Well, I could find out where he lives and give you his address by sending over to Baltimore, which I will do if it is necessary.

Mr. WORTHINGTON: You are requested to do so.

65 Q. What did Boswell have to do with the making of these blocks? What was his part of the business?

A. He helped to saw the blocks.

66 Q. You cannot recall the name of any other man who was engaged in that business on that work?

A. I cannot think of a single person. There were not more than two (2) or three (3) at work on them.

67 Q. I understood you to testify that you made blocks of
294 the same shape as those you made for Wright, and made them in the same way various times before 1865. Is that so?

A. Yes, sir.

68 Q. Can you give me the name of anybody who was employed on that work on any of these occasions when blocks of this kind were made in that way?

A. When I made that statement I meant that I cut those blocks myself and for different parties, and I did not require any assistance to do it. I do not remember of employing any person to cut such a small quantity of blocks in that way; but in this case of Mr. Wright's there were two (2) or three (3) or more employed in cutting them, but as far as the other blocks are concerned I do not remember any person that I had particularly employed for that purpose.

69 Q. Did you cut the blocks of Wright referred to from plank or from timber?

A. They were cut in the first place from plank.

70 Q. How in the next place?

295 A. They were cut into blocks on a bevel.

71 Q. You are referring to the cross-cuts which made two (2) blocks from one?

A. Yes, sir.

72 Q. The blocks were all cut from plank, were they?

WITNESS: Now I am going to ask you to explain what you mean by plank or timber?

73 Q. ——.

A. S. WORTHINGTON: I will reply by asking you what you mean by plank or timber in your understanding of the meaning of those words in your business?

A. We consider in thickness from two (2) to six (6) inches and from six (6) to twelve (12) inches and upwards in width—that is what we call a plank.

74 Q. Well, what do you call timber?

A. We call timber five (5) by five (5) and six (6) by six (6) and so on upwards until you get to twelve (12) inches by fourteen (14) inches square.

75 Q. Were blocks which you cut for Mr. Wright all cut from plank, and was the word plank used in the sense in which you have just stated you used it?

296 A. They were cross-cut from a plank. We cut those planks from what we termed timbers—that is, anything that is square from four (4) to six (6) inches and upwards.

76 Q. You have already told me that, and I ask you whether you cut any of those blocks from timber?

A. We cut the blocks from timber after it was manufactured into timber from those planks. We can make timber out of a plank six (6) inches by eight (8) inches or any other size by ripping it through and making that square; that is what we call timber in our business. We can manufacture timber out of a four (4) inch plank.

77 Q. Were the pieces of wood from which you manufactured these planks of about the same size—about the same dimensions—whether you call them plank or timber?

A. When it was cut into wedges in the manner that we cut it it would then be called timber, according to the term that we
297 used. We took plank in the first place, as I have stated, and made timber of it.

78 Q. How?

A. By ripping it the required wi-th—perhaps square, if it was four (4), five (5), or six (6) inches—rip it that way (indicating); then it would be called timber.

79 Q. Now, please inform us and the court what you mean by ripping.

A. Taking a plank that is twelve (12), fifteen (15), or twenty (20) inches wide, six (6) inches thick, and making it into six (6) inch timber by sawing it through.

80 Q. From end to end?

A. Yes, sir; from end to end; then it would be six (6) by six (6) timber—the term that is used here among lumbermen.

81 Q. Then you began by taking a plank which was twelve (12) inches wide and ripping it from end to end, so as to make (2) pieces of it, each of which was six (6) inches long by six (6) inches wide?

A. Correct.

82 Q. Did each of these separate pieces of timber six (6)
298 by six (6) you cut into these blocks?

A. Yes, sir. Therefore that was the size.

83 Q. I understood you to say that you did use plank twelve (12) inches wide in making the right blocks?

A. I used plank in the first place, and ripped that the required wi-th from end to end and made them five by five (5), six (6) by six (6), or whatever was required.

84 Q. What was required in making right blocks?

A. As I stated in my examination-in-chief, I stated simply from recollection; as to the size I could not say any more. It has been a number of years since I cut the blocks. It would be impossible for me to say exactly the size.

85 Q. Are you sure that in making these blocks you ripped the plank from end to end making two (2) pieces, each of which was five (5) or six (6) inches square?

A. Yes, sir.

86 Q. And then that you took each of these square pieces
299 of timber, as you call them in your business, and cut them into blocks?

A. Yes, sir.

87 Q. That you did in making the Wright blocks?

A. I did.

88 Q. Now, please describe the next step in the process of making these blocks—the next step after ripping the block into timber.

A. After ripping that into timber I cross-cut them, in order to give them a bevel on each end of required length—let it be five (5) inches or more in length. That was the first process.

89 Q. I do not quite understand you. What was the size and shape of the first piece cut from the timber in making the first block, supposing, for illustration, that the timber was six (6) by six (6)?

A. Well, I will suppose it was six (6) by six (6). The timber was laid on an inclined table and cut off to form a bevel on each end of the blocks.

90 Q. Now, I have sketched here a piece of timber on a
300 paper marked Complainant's Exhibit Y, and shown in figure 1, in which A B C D represents the square end of a piece of timber which I will suppose to be six (6) by six (6). I wish you to indicate, by making a pencil mark upon this figure, the location and direction of the first cut to be made on that piece of timber after you are about to cut it up into blocks of the same size and in the same manner as in making the Wright blocks referred to.

(The witness marked upon the figure, indicating the lines 1 2 3 4 5 6 and)—

A. 1 2 indicate the first cut, 3 4 the second cut, 5 6 the third, and so on until the piece of timber is cut up.

91 Q. Now, can you indicate upon that same figure how the second cut is made—which cut, for instance, block 1 2 3 4 into two (2)?

(The witness here marks upon the figure in question lines 7 8 9 10 and)—

301 A. These lines indicated by the figures 7 8 9 10 are not drawn accurately. It was supposed that the blocks were to be of equal size. They were cut on an inclined table, so as to form a block at right angles from the center. What I mean by right angles from the center is lines drawn as designated by figures 11 and 12.

The witness here make another mark upon the figure in question and says: Now, that means that this block is at right angles from 11 and 12.

The sketch last referred to is offered and placed by the complainant in evidence and is marked Complainant's Exhibit Y.

Redirect examination by M. BAILY, Esq.:

92 Q. You have stated that the lines 7 8 9 10 are not accurately placed on the figure shown in Complainant's Exhibit Y. Will you please place lines on that figure to represent those cuts, which
302 would be more accurately placed?

The witness was about to make some marks on the exhibit referred to when further questioned as follows:

93 Q. I ask you to confine your attention simply to the parallelogram indicated by figures 2 and 4 and letters K and Y, which indicates the side of the bevelled block. Now place on that the cut which divided that into two (2) blocks in a correct position.

Counsel for the complainant requests the examiner to note that

when interrupted the witness was proceeding to comply with the request of counsel for the defendant and had drawn the lines here represented by 8 Y.

Solicitor for the defendant waives the question last put.

94 Q. Please take this block which I hand you and, supposing it to represent a stick of timber, mark upon it the cross-cuts by
303 which you would divide that block into bevel blocks. Just mark on it the cross-cuts first.

Solicitor for the complainant objects — the question as being examination-in-chief and a reopening of the whole case.

A. Letters 1 2 3 4 represent the cross-cuts.

95 Q. Now mark upon the wood the direction of the cut by which you separate the bevel block 1 2 3 4 into two (2) wedged-shaped blocked.

A. The lines 7 8 represent the cut.

Solicitor for the defendant here offers and places in evidence the block referred to, and the same is marked Complainant's Exhibit Model D.

WITNESS: I would like to, on the same block, represent by lines what I mean by lines at right angles with the bottom and top of the block. Such lines I refer to by the lines 11 and 12 in Com-
304 plainant's Exhibit Y, and I explain by producing such lines on model D, defendant's exhibit, by the lines 11 and 12. I mean by that that the lines 11 and 12 are at right angles with the top and bottom of the wooden block.

N. C. DRAPER,
Per E. FORREST, *Examiner.*

The defendant here closes its testimony-in-chief.

I, Edwin Forrest, an examiner in chancery, do hereby certify that the foregoing depositions were duly taken down by me and reduced to writing from the statements of the witness- at the time and place mentioned in the caption hereof, and were afterwards by said witness- read over and subscribed to, except the deposition of the witness Draper, who left without subscribing to his deposition, and the same was duly subscribed to for him by the examiner, the said witness- having been first duly sworn to tell the truth, the whole
305 truth, and nothing but the truth touching the matters at issue in said *course.* I further certify that I am not of counsel for either of the parties to said *course* or in any manner interested therein.

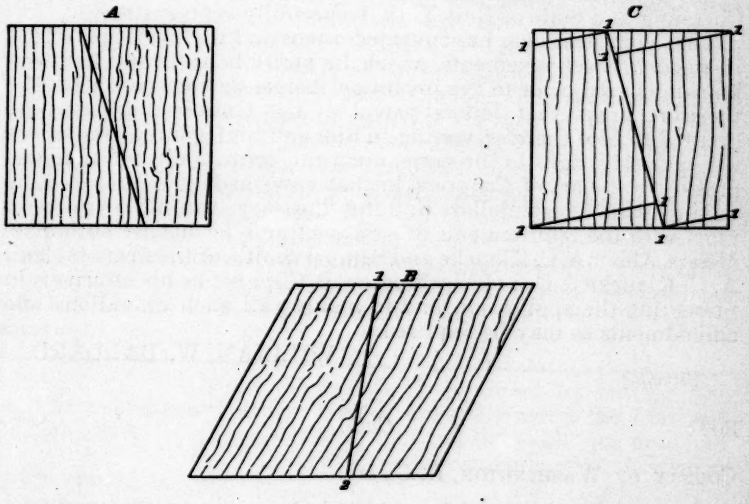
E. FORREST, *Examiner.*

306 EXHIBIT No. 1.

BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

Defendant's Exhibit D. C. No. 1, filed with the examiner this 13th day of October, 1881.

E. FORREST, *Examiner.*



307 EXHIBIT No. 2.

BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

Defendant's Exhibit D. C. No. 2, filed with the examiner this 13th day of October, 1881.

E. FORREST, *Examiner.*

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper, contents, and drawing as originally filed in the matter of the application of William W. Ballard, filed June 15, 1869, for wooden street pavements.

In testimony whereof I, E. M. Marble, Commissioner of Patents,

have caused the seal of the Patent Office to be affixed this twenty-second day of June, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] E. M. MARBLE,
Commissioner.

308 *Petition.*

To the Commissioner of Patents:

The petition of William W. Ballard, of Elmira, in the county of Chemung and State of New York, respectfully represents—

That your petitioner has invented a new and useful improvement in wooden street pavements, which he verily believes has not been known or used prior to the invention thereof by your petitioner; he therefore prays that letters patent of the United States may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid fifteen dollars into the Treasury, and otherwise complied with the requirements of said act; and he hereby authorizes Messrs. Alex'r A. C. Klaucke and Samuel Smith, of the firm of Alex'r A. C. Klaucke & Co., of Washington, D. C., to act as his attorneys in presenting the application and in making all such alterations and amendments as may be required.

WILLIAM W. BALLARD.

[Stamp.]

309 *Oath.*

COUNTY OF WASHINGTON, D. C., *ss:*

On the fifteenth day of June, 1869, before the subscriber, a notary public in and for said county, personally appeared the within-named William W. Ballard and made solemn oath that *oath* verily believes himself to be the original and first inventor of the within-described improvement in wooden street pavements, and that he does not know or believe that the same was ever before known or used, and that he is a citizen of the United States.

[L. S.] EDM. F. BROWN,
Notary Public.

To all *to* whom it may concern:

Be it known that I, William W. Ballard, of Elmira, in the county of Chemung and State of New York, have invented a new and useful improvement in wooden street pavements, and I do hereby declare the following to be a full, clear, and exact description thereof, sufficient to enable others skilled in the art to make and use the same, reference being had to the accompany-

310 ing drawings, forming part of this specification, and in which figure 1 is a perspective view of a section of pavement embracing my improvement. Figure 2 is aperspective view of a piece

of timber from which the block is cut showing its shape as marked by the cuts from the saw, and figure 3 is a perspective view of two of the blocks laid alongside of each other. To more clearly illustrate my improvement I will proceed to describe the same, referring by letters to the accompanying drawings: A represents the bed of the street of a slightly arched form, the ends of the arch resting against the two curbs B B. Strips C, of the same curvature as the bed of the street, are placed at convenient distances apart and in parallel planes. Said strips are covered or floored with boards of sufficient thickness, and the blocks D are placed upon said flooring, as seen at figure 1 of the drawing, so that the base- of the blocks rest upon said flooring and touch each other at the sides, leaving between the rows of blocks a wedge-shape space, E, into which is forced concrete or its equivalent to hold said blocks in place and make a continuous surface on top. The blocks, if deemed expedient or necessary, may be nailed to the flooring, and of course are so laid as to break joints, the gutters being formed by providing an incline of the flooring at the curb and cutting away the end of blocks intended for guttering to fit against the end of the block next to the gutter, the blocks used in my improved pavement having two oblique sides and parallel base and top, or, in other words, being a trunkated isosceles triangle, and, in contradistinction to any other wedge-shaped block, having both sides inclined and one, and one only, of its sides in the same parallel plane with the fibre of the wood—

311

Erase and insert clause 1, am'd't A.

and being produced by cutting the timber obliquely across the fibre and then splitting the block thus produced with the same degree of inclination as the cross-cuts.

I am aware that street pavements have been constructed of wedge-shaped blocks having both sids oblique to the fibre of the wood, and also that pavements have been constructed with wedge-shaped blocks having only one side inclined (the other being at right angles to the base); but there are many disadvantages connected with all such constructions of pavements, one and the most important of which is in the former class and consists in the waste of material and labor in producing the block, and one objection in the latter class is that the space between the rows of blocks, and which is filled with concrete, having one vertical and one oblique or inclined side, the pressure is not equal against the two rows of blocks.

312

An important feature in my improved pavement, and one which does not exist in most of the approved pavements, is that when it becomes necessary to take up any part of the pavement for the introduction or repair of water or gas pipes or for other reasons all that is necessary is to remove the concrete between any two rows of blocks, when a few or as many blocks may be re-

313

Words and sentences enclosed between rules erased in original.

moved as desired, the great advantage of the wedge-shape spaces being the equal pressure at all points, and consequently the tightening of the whole structure as it becomes worn from the top, the concrete being forced into a constantly growing smaller space and consequently forcing the fibres of the blocks closer together.

The edges of the base of the blocks touching are held in place by the concrete, and form, as it were, one continuous base or arch, enabling it to sustain almost any amount of weight. I do not wish to lay claim broadly to a street pavement constructed with wedge-shaped blocks having one or both sides at an acute angle to the base, but what I do claim as new and desire to secure by letters patent is—

Erase and insert clause 2d, am'd't A.

A wooden street pavement constructed of wedge-shaped blocks D, cut as described, having both sides beveled and the grain running in parallel planes with one of the said sides, the said blocks being laid upon the floor breaking joints and with concrete interposed, as and for the purposes hereinbefore set forth.

WILLIAM W. BALLARD.

Witnesses:
SAMUEL SMITH.
J. E. M. BOWEN.

314

U. S. PATENT OFFICE,
WASHINGTON, D. C., *July 3d*, 1869.

William W. Ballard, care A. A. C. Klaucke, pres't.

SIR: Please find below a communication from the examiner relating to your application for patent for wooden street pavement.

Very respectfully,
ELISHA FOOTE,
Commissioner.

June 15th, 1869.

Examiner's room No. 87.

In the matter of Ballard'- appl'n for wood pavement, the claim is for blocks cut in a certain manner, having a described configuration (not itself new) and a peculiar relation of sides & grain. A claim was allowed in an appl'n made by this applicant jointly with Waddell for a mode of cutting blocks, which mode is precisely the same as described in this appl'n and the blocks are the same. It is held that the two claims are essentially the same, the former being for manner of cutting the blocks & and the latter for blocks cut in that manner.

The appl'n is therefore rejected.

ELLIS SPEAR, *Ex.*

Words and sentences enclosed between rules erased in original.

315 WASHINGTON CITY, D. C., *July 12th*, 1869.

Hon. Comm'r of Patents.

SIR: I have the honor to acknowledge the receipt of the official letter rejecting my application for letters patent for improvements in wooden street pavement, and beg that the case may be reconsidered, in view of the accompanying amendment. This application is not intended or asked for the purpose of covering any configuration of block, but for a pavement constructed with blocks which are different from any block heretofore known. It is granted that in configuration they are the same as other blocks, but they possess other features which do not exist in others of similar shape, the distinguishing feature being that the block, though of wedge shape, has the grain running oblique to only one of the beveled sides and in parallel planes with the other. I do not stop here to discuss any advantages of this feature, but go on to another and more im-
316 portant point. A pavement constructed of blocks as described in the application can be laid at a cost of fifty cents less in a a square yard than any other wooden pavement now known. This fact alone, it seems to me, should entitle the applicant to a patent, as he does what no one has ever before done—*i. e.*, lays a pavement equally as good as any others for which patents have been granted at a less price.

I do not wish it understood that this application is intended to cover a block "cut in a manner" which has been allowed in a previous claim with a joint inventor for "the manner of cutting." Such a conclusion would be a fatal misconstruction of the meaning intended to be conveyed. I do not claim the block cut in *the* manner. I want to cover a pavement, as a whole, which is constructed of blocks, the mode of cutting which has been allowed. Had I a patent for "the block" I would not then urge any objection to the action of the office; but I have only so far covered a mode—
317 one mode of cutting the blocks—so that should said patent when granted give (as it undoubtedly will) an impetus to inventors to discover a different mode of producing the same result, why then said subsequent inventor will be allowed to build a pavement of such blocks, and my "mode patent" will be of no avail or protection. I claim to be the first to discover that a street pavement can be laid with wedge-shaped blocks cheaper than of blocks of any other configuration, which idea is directly antagonistic to all previous experience. To be sure, pavements can be built with wedge-shaped blocks having both sides beveled. But how? At an increased cost over any others, whereas a pavement embracing my improvement can be built of wedge-shaped blocks. But how? Why, at a cost less than any other. This feature of cheapness, which is the result of the block having both side- beveled and the grain running parallel with one & obliquely to the other two sides, I claim renders the block itself a new feature in street pavements, and in this par-
318 ticular age a very essential one, for anything that saves labor or money is a success.

Trusting that the office may dispose of my application more favorably upon a second consideration,

I am, very respectfully,

W. W. BALLARD,
By WM. C. McINTIRE,
Of Counsel.

WASHINGTON, D. C., *July 12th*, 1869.

Hon. Comm'r Patents.

SIR: I hereby amend the specification of my application for letters patent for "imp't in street pavements" as follows: Erase from word "and," line 25, page 2, to word "cuts," line 29, page 2, inclusive, and substitute the following:

Clause 1st. Whereby a saving in material equal to fifty cents per square yard, or thereabouts, is obtained in the construction of the pavement.

Erase the present claim & substitute therefor the following, viz:

Clause 2. In wooden street pavements, blocks having the grain thereof running parallel with one and oblique to the other of their beveled sides, whereby a saving in material equal to fifty cents per square yard, or thereabouts, is obtained, substantially as hereinbefore described.

319

W. W. BALLARD,
By WM. C. McINTIRE,
Associate Attorney.

JULY 13TH, '69.

Hon. Comm'r Patents.

SIR: You will please recognize W. C. McIntire as our associate att'y in appl. of W. W. Ballard, street pavement.

ALEX'R A. C. KLAUCKE & CO.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *July 14th*, 1869.

William W. Ballard, care A. A. C. Klaucke, pres't.

SIR: Pleas- find below a communication from the examiner relating to your application for patent for wooden street pavement, filed June 15th, 1869.

Very respectfully,

——— ———,
Commissioner.

(Here follows diagram marked p. 320.)

321 Examiner's room No. 87.

In the matter above referred to the claim originally presented is not essentially modified by the amendment of the 12th inst. It is admitted that there is no difference between the blocks of appli-

cant and those of Miller and Mason in configuration, nor is any difference claimed of functions. These blocks and those of the patent referred to once laid would be indistinguishable, serving, under the same conditions, precisely the same purpose & wearing equally as long. The difference lies in the mode of cutting, by which not a different block is produced, but the same block is cut with a minimum of waste of material. The mode of cutting is admitted to be new, but the block is old. The mode of cutting is covered by the application referred to in former official letter. The claim now presented is held to be for essentially the same block as is admitted to be old, such as are shown in the patent of Miller & Mason of March 31st, 1868.

The appl'n is therefore finally rejected.

ELLIS SPEAR, *Ex'r.*

322 WASHINGTON CITY, D. C., *July 27th*, 1869.

Hon. Comm'r Patents.

SIR: We present herewith the application of Ballard and Waddell for imp't in wooden street pavements, and request that the model and thick drawing in the pending application of W. W. Ballard for similar invention be applied to this case. The case of W. W. Ballard is hereby abandoned on account of irregularity in the preparation, one of the inventors only having executed the papers instead of both, which error was committed by mistake and without any fraudulent intent.

Very respectfully,

ALEX'R A. C. KLAUCKE & CO., *Att'ys.*

323 1869.

No. 2490.

William W. Ballard,

Of Elmira,
County of Chemung,
State of New York.

Wooden street pavements.

Rec'd June 15, 1869.
Petition, " " "
Affidavit, " " "
Specification, " " "
1. Drawing, " " "
Model, " " "
Cert. dep., ——.
1. Cash, $15, June 15, 1869.
Add'l fee cert., ——.
" " cash, ——.
Examined ——.
2. Issue ——.
4. Patented 186–.

Recorded, vol. —, page —.
Circular, ——.
A. A. C. Klaucke & Co., present.
1869.

324 1869.

Rej. July 3d, '69.
Rej. July 14th, '69.
Abandoned.
See papers in file.
1869.

325 DEFENDANT'S EXHIBIT No. 3. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. C. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper and contents of the appeal to the examiners-in-chief, filed July 14, 1869, in the matter of the application of W. W. Ballard for street pavement, filed June 15, 1869.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this twentieth day of June, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] E. M. MARBLE,
Commissioner.

326 WASHINGTON, D. C., *July* 14, '69.

In the Matter of the Application of W. W. BALLARD, "Imp't in Street Pavements."

Hon. Comm'r Patents.

SIR: I have the honor to appeal from the decision of the primary examiner in the above-entitled application, rejected a second time on the 14th inst., and request that the same may be heard by the examiners-in-chief, agreeable to the act of Congress in that case made and provided.

Very respectfully,

W. W. BALLARD,
By ALEX'R A. C. KLAUCKE & CO.,
WM. C. McINTIRE, *Associate.*

U. S. PATENT OEFICE,
WASHINGTON, D. C., *July* 14, 1869.

The examiners-in-chief can examine the case of W. W. Ballard, now before them, if it can be done without prejudice to other parties.

GRINNELL, *Chief Clerk.*

Examiner-in-chief.

327 No. 3951.

U. S. PATENT OFFICE, *July 15th*, 1869.

Before the examiners-in-chief on appeal.

Application of W. W. Ballard for a patent for an improvement in wooden pavements.

It seems that applicant has another application for a novel method of cutting timber into paving blocks of the peculiar shape described and claimed in this application, by which method he uses all or nearly all the material and makes a saving of a large percentage in the manufacture of such blocks over any method now in use.

Conceding that such being the fact, he would be entitled to a patent for the method. It would seem also to follow that he would be entitled to a patent for the manufactured article and its use in pavements.

The trouble with the present application appears to be that the specification and claim merely set forth and embrace a paving block and the use thereof, having a certain form and being so cut that the grain will run in certain angles with the sides or paralleled thereto and without any reference to the mode and manner of manufacturing.

328 Blocks having all the peculiarities set forth may be manufactured without resorting to the method by which it seems the ones described in the application were made; and it does not follow, therefore, that the block described and claimed is the new article of manufacture produced by the new invention, nor is it at all material whether the grain runs as set forth or the blocks have the precise form described. Therefore these peculiarities are not the patentable features of the invention; they merely result from the invention.

The present application must stand rejected; but under the circumstances the applicant may properly be allowed to amend so as to fully set out his invention and claim for the new article of manufacture and its legitimate use.

It would perhaps have been better had he included all his claims in the original application; but, having failed to do so, we think it is optional for him to ask for a reissue or pay a new fee and take another patent, provided always that the rights of others having an interest in the first patent are in no way prejudiced.

R. L. B. CLARKE,
SAM'L C. FESSENDEN,
Examiners-in-Chief.

329 DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE, *July 16th*, 1869.

SIR: Your application for a patent for street pavements has been considered by the examiners-in-chief upon appeal, and they affirm the former action of the office and decide that the application should be refused as the case now stands.

Respectfully, &c.,

——— ———,
Commissioner of Patents,
F. C. LATHROP, *Clerk.*

W. W. Ballard, care W. C. McIntire, Esq., Washington, D. C.

330 1869.

Appeal to Examiners-in-Chief.

No. 3951.

W. W. Ballard,
Of ———,
County of ———,
State of ———.

Street pavements.

Rec'd July 14, 1869.
Petition, July 14, 1869.
Affidavit, ———.
Specification, ———.
Drawing, ———.
Model, ———.
Cert. dep., ———.
1. Cash, $10, July 14, 1869.
Add'l fee cert., ———.
" " cash, ———.
Examined ———.
2. Issue ———.
4. Patented ———, 186–.
Recorded, vol. —, page —.
Circular, ———.
A. A. C. Klaucke & Co., pres't.
1869.
W. C. McIntire, asso., pres't.

331 1869.

Examiner's decision is affirmed as the case now stands, July 15th, 1869.
Notice of decision sent to applicant July 16th, 1869.
1869.

332 Filed with the Examiner this 13th day of October, 1881, as DEFENDANT'S EXHIBIT D. C. No. 4. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper and contents in the matter of the letters patent granted William W. Ballard and Buren B. Waddell—Buren B. Waddell assigns his right to Wm. W. Ballard—August 24, 1869, No. 94062, for improved wood pavement.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this twenty-fourth day of June, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independenee of the United States the one hundred and fifth.

[SEAL.] E. M. MARBLE,
Commissioner.

333 *Petition.*

To the Commissioner of Patents:

The petition of William W. Ballard, of the city of Elmira, county of Chemung, State of New York, and Buren B. Waddell, of the city of Memphis, Tennessee, respectfully represents—

That your petitioners have invented a new and useful improvement in wooden street pavements which they verily believe has not been known or used prior to the invention thereof by your petitioners. They therefore pray that letters patent of the United States may be granted to them therefor, vest- in them and their legal representatives the exclusive right to the same upon the terms and conditions expressed in the act of Congress in that case made and provided, they having paid fifteen dollars into the Treasury and otherwise complied with the requirements of said act; and they hereby authorize Messrs. Alex'r A. C. Klaucke and Samuel Smith, of the firm of Alex'r A. C. Klaucke & Co., of Washington, D. C., to act as their attorneys in presenting the application, and in making all such alterations and amendments as may be required.

WILLIAM W. BALLARD.
BUREN B. WADDELL.

[Stamp.]

334 *Oath.*

STATE OF TENNESSEE,
City of Memphis, County of Shelby, } ss:

On this 19th day of July, 1869, before the subscriber, a notary public in and for said county, duly appointed and qualified as such, personally appeared the within-named William W. Ballard and Buren B. Waddell and made solemn oath that they verily believe themselves to be the original and first inventors of the within-described improvements in wooden street pavements, and that they do not know or believe that the same was ever before known or used, and that they are citizens of the United States.

[SEAL.] HENRY P. WOODARD,
Notary Public.

To all whom it may concern:

Be it known that we, William W. Ballard, of Elmira, in the county of Chemung and State of New York, and Buren B. Waddell,
of Memphis, in the county of Shelby and State of Tennessee,
335 have invented certain new and useful improvements in street pavements; and *and* we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and in which figure 1 is a perspective view of a section of pavement embracing our improvement. Figure 2 is a perspective view of a piece of timber from which the block is cut & showing the cuts made by the saw, and figure 3 is a perspective view of two of the blocks laid alongside of each other.

To more clearly illustrate our invention we will proceed to describe the construction, &c., referring by letters to the drawings. A represents the bed of the street, which is made slightly arched, the ends of the arch resting against the curbs B B. Strips C are laid upon said arch at right angles to the curb, and at convenient distances apart upon said strips is laid a flooring, composed of boards of any desired dimentions, and the blocks are then laid on this flooring in rows and so as to break joints. These blocks are of a
336 wedge shape and are so laid as that their bases shall touch, forming a continuous arch across the street and leaving V-shaped spaces between the rows. These spaces are filled with concrete or its equivalent, and the whole surface tarred over if thought necessary. The gutters are formed by inclining the bed slightly upward at the curb and *and* splitting the ends of the blocks off to fit against the curb and the last one of the street blocks.

The peculiarity of the blocks used in this pavement is that they are wedge-shaped and having both sides at acute angles with the base and the grain running parallel with one and oblique to the other of these sides. A more perfect description of these blocks and the manner of producing them is given in another pending application, now on file in the U. S. Patent Office, entitled "A method of

cutting blocks for street pavements," prepared and executed by us on the 29th day of September, 1868.

The advantages of blocks having both sides beveled, with the grain running as described, over the ordinary wedge-shaped block,
337 are, first and most important, that only one corner of the base is at all likely to become broken off by transportation & rough handling, whereas in the ordinary block both corners are liable to such accident. Another advantage of the relation of grain to the sides of the block is that the V-shaped spaces have one perfectly smooth side, and consequently less opportunity is afforded to the gravel (in the filling) to jam & leave the lower portion of the space loosely or entirely unfilled. This is believed to be a difficulty in pavements constructed of wedge-shaped blocks having the grain running vertically & thereby exposing the end of the fibre on both the beveled sides of the block.

A pavement constructed of our improved blocks can be laid at a less cost than any other wedge-shaped pavement, owing to the cheapness of the blocks.

It has always been desirable to build pavements of wedge-shaped blocks, as they make a stronger and more durable pavement and are more easily laid; but so far it has been impracticable,
338 owing to the expense of producing the blocks (caused by the waste in material and extra sawing). Having described the construction and advantages of our improved pavement, what we claim as new and desire to secure by letters patent is—

1st. As an article of manufacture, wedge-shaped blocks having the grain running parallel to one and oblique to the other of their beveled sides, and produced substantially in the manner referred to.

2nd. A wooden street pavement constructed, substantially as hereinbefore described, of wedge-shaped blocks, with the grain running and produced in the manner and for the purpose set forth.

July 19, '69.

A. A. C. K. & CO

In testimony whereof we have hereunto set our hands and affixed our seals this 19th day of July, 1869.

W. W. BALLARD. [SEAL.]
BUREN B. WODDELL. [SEAL.]

In presence of—
JOHNSTON G. FINNIE.
G. E. W. L. CROOK.

The decision of the ex'rs-in-chief in this case may be found in the abandoned case of Ballard, filed June 15th, 1869.

339 *Memorandum of Fee Paid at U. S. Patent Office.*

Hand, $20.
Inventor: W. W. Ballard & Woddell.
Invention: Street pavements.
Date of payment: August 13th, 1869.

Fee: $20.
Solicitor: A. A. C. Klaucke & Co.
To be issued to W. W. Ballard.

340

2655.
1869.
No. 94062.

William W. Ballard[1] and Buren B. Waddell[2]. Buren B. Waddell assigns his rights — Wm. W. Ballard.

Of Elmira[1]—Memphis[2],
County of Chemung—Shelby,
State of New York—Tennessee.
Wooden pavement.
Rec'd July 28, 1869.
Petition, July 28, 1869.
Affidavit, " "
Specification, July 28, 1869.
Drawing, " "
Model, old, " "
Cert. dep., —.
1. Cash, $15, July 28, 1869.
Add'l fee cert., —.
1. Add'l fee, cash $20, Aug. 13, 1869.
Examined Aug. 9th, '69. Ex'r-in-chief.
2. Issue. Grinnell, Aug. 13, 1869.
4. Patented Aug. 24, 1869.
Recorded vol. —, page —.
Circular —.
A. A. C. Klaucke & Co., pres't.
1869.

(Here follows diagram marked p. 341.)

342 UNITED STATES PATENT OFFICE.

WILLIAM W. BALLARD, of Elmira, New York, and BUREN B. WADDELL, of Memphis, Tennessee. Buren B. Waddell assigns his right to Wm. W. Ballard.

Improved Wood Pavement.

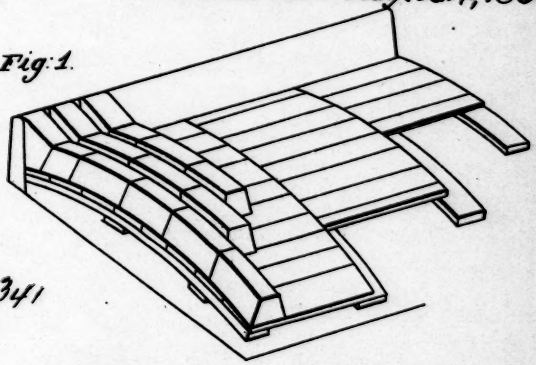
Specification forming part of Letters Patent No. 94062, dated August 24, 1869.

To all whom it may concern:

Be it known that we, William W. Ballard, of Elmira, in the county of Chemung and State of New York, and Buren B. Waddell, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful improvements in street pavements; and we do hereby declare the following to be a full, clear, and exact

Ballard & Waddell.
Wood Pavement.
No. 94,062. Patented Aug. 24, 1869.

Fig: 1.



No. 137.
Brown
v
D.C
p. 341

Fig: 3.

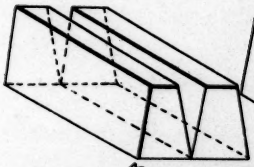


Fig: 2.

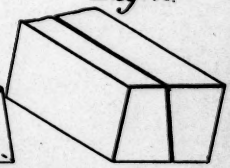
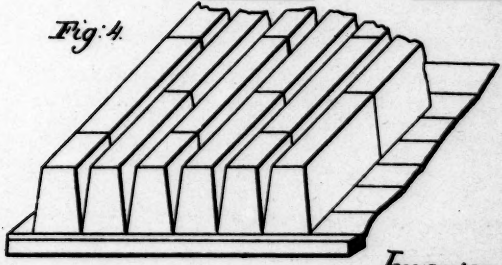


Fig: 4.



Witnesses
Samuel Smith
Henry J. Fritz

Inventor
Ballard & Waddell
by Alex. A. C. Blanchard
Attorneys

description thereof, reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a perspective view of a section of pavement embracing our improvement. Fig. 2 is a perspective view of a piece of timber from which the block is cut, and showing the cuts made by the saw; and Fig. 3 is a perspective view of two of the blocks laid alongside of each other.

To more clearly illustrate our invention, we will proceed to describe the construction, &c., referring by letters to the drawings.

A represents the bed of the street, which is made slightly arched, the ends of the arch resting against the curbs B B. Strips C are laid upon said arch at right angles to the curb, and at convenient distances apart. Upon said strips is laid a flooring, composed of boards of any desired dimensions, and the blocks are then laid on this flooring in rows, and so as to break joints. These blocks are of a wedge shape, and are so laid as that their bases shall touch, forming a continuous arch across the street, and leaving V-shaped spaces between the rows. These spaces are filled with concrete, or its equivalent, and the whole surface tarred over, if thought necessary. The gutters are formed by inclining the bed slightly upward at the curb, and splitting the ends of the blocks off, to fit against the curb and the last one of the street blocks.

The peculiarity of the blocks used in the pavement is that they are wedge-shaped, and having both sides at acute angles with the base, and the grain running parallel with one and oblique to the other of these sides.

A more perfect description of these blocks and the manner of producing them is given in another pending application, now on file in the United States Patent Office, entitled "A method of cutting blocks for street pavements," prepared and executed by us on the 29th day of September, 1868.

The advantages of blocks having both sides beveled, with the grain running as described, over the ordinary wedge-shaped block, are, first and most important, that only one corner of the base is at all likely to become broken off by transportation and rough handling, whereas in the ordinary block both corners are liable to such accidents. Another advantage of the relation of grain to the sides of the block is that the V-shaped spaces have one perfectly smooth side, and consequently less opportunity is afforded to the gravel in the filling to jam, and leave the lower portion of the space loosely or entirely unfilled. This is believed to be a difficulty in pavements constructed of wedge-shaped blocks having the grain running vertically, and thereby exposing the end of the fiber on both the beveled sides of the blocks.

A pavement constructed of our improved blocks can be laid at a less cost than any other wedge-shaped pavement, owing to the cheapness of the blocks.

It has always been desirable to build pavements of wedge-shaped blocks, as they make a stronger and more durable pavement, and are more easily laid; but so far it has been impracticable, owing

to the expense of producing the block caused by the waste in material and extra sawing.

Having described the construction and advantages of our improved pavement, what we claim as new and desire to secure by letters patent is—

1. An article of manufacture, wedge-shaped blocks, having the grain running parallel to one and oblique to the other of their beveled sides, and produced substantially in the manner referred to.

2. A wooden street pavement constructed, substantially as hereinbefore described, of wedge-shaped blocks, with the grain running and produced in the manner and for the purpose set forth.

In testimony whereof we have hereunto set our hands and affixed our seals this 19th day of July, 1869.

W. W. BALLARD. [L. S.]
BUREN B. WADDELL. [L. S.]

In presence of—
JOHNSTON G. FINNIE.
GEO. W. L. CROOK.

343 DEFENDANT'S EXHIBIT D. C. No. 5. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper and contents and drawing, as originally filed, in the matter of the letters patent granted Turner Cowing, ass'or to Tallmadge E. Brown April 5, 1870, No. 101,590, for improvement in wood pavement.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this twenty-first day of June, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and fifth.

[SEAL.] E. M. MARBLE,
Commissioner.

344 SAN FRANCISCO, CAL., *October* 13, 1865.

To the Commissioner of Patents, Washington, D. C.

SIR: Enclosed find order for $15, the fee payable on application for patent. My application is for an improvement in the construc-

tion of wood pavements. All the papers, model, &c., have been forwarded.

Yours respectfully, TURNER COWING.

Petition.

To the Commissioner of Patents:

The petition of Turner Cowing, of the city & county of San Francisco, State of California, respectfully represents that your petitioner has invented a new and improved mode of constructing wood pavements which he verily believes has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters patent of the United States may be granted to him
345 therefor, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid fifteen dollars into the Treasury and complied with the other provisions of the said act.

TURNER COWING.

Specification.

To all whom it may concern:

Be it known that I, Turner Cowing, of the city and county of San Francisco, in the State of California, have invented a new mode of constructing wood pavements for streets, and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in providing and arranging blocks of a peculiar shape in manner to form wedge-shaped crevices for the reception of earth or gravel, and wherein such earth or gravel will be retained to act as a key to bind and confine the blocks in their place.

Figure 1 represents a section of road paved with the blocks, complete. Fig. 2 represents the straight side of a block, with the inclined side at E. Fig. 3 represents the top of a block, and also the section of the base D. Fig. 4 represents the straight side of a block, which is set next to the inclined side of the adjoining block.

In Fig. 1 letters A represent the top of the block, B the side, and E the crevice and gravel.

Insert clause 1 of am'd't "A."

To construct my pavement, prepare the roadway by grading it to the proper form and ramming solid; then set the blocks as shown in Fig. 1, confining them permanently between the curbs of walks; then fill and ram the crevices with earth and gravel.

TURNER COWING.

Witnesses:

W. O. ANDREWS.

J. R. BRETT.

346 *Claim.*

What I claim as my invention and desire to secure by letters patent is the use and application Erase and insert am'd't C. of the above-described blocks for paving streets when constructed with one inclined side so as to form the wedge-shaped crevice, substantially as above described.

TURNER COWING.

Witnesses:
W. O. ANDREWS.
J. R. BRETT.

STATE OF CALIFORNIA,
City and County of San Francisco:

On this 13th day of October, A. D. one thousand eight hundred and sixty-five, before me, the subscriber, a notary public, personally appeared the within-named Turner Cowing and made solemn oath that he verily believes himself to be the original and first inventor of the mode herein described for constructing wood pavements, and that he does not know or believe the same was ever before known or used, and that he is a citizen of the United States.

[SEAL.] W. O. ANDREWS,
Notary Public.

[Stamp.]

347 U. S. PATENT OFFICE, *Dec.* 27, 1865.

SIR: Your application for a patent for improved wooden pavements is rejected. You merely reverse the plan usually adopted in the construction arches and apply the same to the construction *to* street pavements. The grading of streets being usually crowning or convex to permit the flow of water, the same results would be obtained as claimed by you in the use of ordinary square blocks laid upon a convex surface, and changes as you describe are not the subject of letters patent.

Y'r., ——.

Turner Cowing, Esq., San Francisco, Cal.

Petition.

To the Commissioner of Patents:

The petition of Turner Cowing, of the city and county of San Francisco, State of California, respectfully represents—

That your petitioner has invented an improved wood pavement, which he verily believes has not been known or used prior
348 to the invention thereof by your petitioner. He therefore prays that letters patent of the United States may be granted

Words and sentences enclosed between rules erased in original.

to him therefor, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the acts of Congress in that case made and provided, he having paid fifteen dollars into the Treasury and complied with the other provisions of the said acts; and I do hereby appoint and constitute Dewey & Co., of San Francisco, and J. Dennis, Jr., of Washington, *our* agents and attorneys, with authority to associate, substitute, and revoke at will, to present and prosecute my application for a patent, and to conduct any interferences with the same, or with the patent, if granted, before the officers of the Patent Office and judges of the several courts in the United States, to receive my patent, and take such measures as they deem best to promote my interests; also to withdraw my application and receive and receipt for any money payable to me by the Commissioner of Patents, whether paid by mistake or otherwise; also to sign drawings and affix and erase any revenue stamps which may have been accidentally omitted.

TURNER COWING.

[Stamp.]

349 *Oath.*

STATE OF CALIFORNIA, }
City and County of San Francisco, } ss:

On this tenth day of April, 1869, before the subscriber personally appeared the aforesaid Turner Cowing and made solemn oath that he verily believes himself to be the original and first inventor of the within described and claimed improvements in wood pavements, and that he does not know or believe that the same was ever known or used before his discovery and use thereof, and that he is a citizen of the United States.

[SEAL.] HENRY S. TIBBEY,
Notary Public.

To the Commissioner of Patents.

SIR: In view of the decision of the examiner in charge in the matter of my application for a patent for wood pavement, as communicated by your official letter of December 27th, 1865, I hereby amend the specification of said application as follows, to wit:

350 1. At the top of page 2, after the word "gravel," insert the following:

"The blocks should, of course, be placed so that the gravel spaces may extend lengthwise across the direction
Clause 1. of the street or road, so that, besides wedging and holding the blocks securely, they may furnish a better foothold for animals drawing heavy loads.

In the drawing the front edge of the pavement, as shown, represents the side next the curb, or a section parallel to the curb."

2. Also strike out the entire claim and substitute the following:

"The foregoing being a description of my invention, what I claim and desire to secure by letters patent is—

Clause 2. Erase & insert am'd't B.

The above-described wood pavement constructed of rectangular blocks having each a wedge-shaped piece cut from one of its four vertical sides to form a corresponding space for filling and placed and filled in, substantially as set forth."

Very respectfully, &c.,

TURNER COWING,
By his att'y, J. DENNIS, Jr.

Washington, D. C., 5, 5, '69.

351

U. S. Patent Office,
Washington, D. C., *Aug. 17th*, 1869.

Turner Cowing, Esq., care J. Dennis, Jr., Washington, D. C.:

Please find below a communication from the examiner in charge of your application for patent for alleged improvement in wooden pavements, filed Nov. 13th, 1865.

Very respectfully,

——— ———,
Commissioner.

Examiner's Room No. 87.

In the matter above referred to the applicant is informed that, in accordance with office rule 123 (ed. Aug. 1st, 1869), his application is regarded as abandoned & cannot therefore now be considered by the office. See also decisions of the Commissioner of Patents in *ex parte* Cochran & *ex parte* Orr, June 9th, 1869.

ELLIS SPEAR,
Examiner in Charge,
Per H. BINNEY.

352 To the Commissioner of Patents:

The petition of Turner Cowing, of San Francisco, Cal., respectfully represents—

That your petitioner filed an application for a patent for wood pavement November 13th, 1865; that the same was once rejected, December 27th, 1865, and subsequently amended, to wit, May 5th, 1869; that he has filed certificates showing good and sufficient reasons for his delay in prosecuting his application, but that the examiner in charge refuses to re-examine his application as amended on the ground that such delay is a proof of abandonment, no other proof being alleged. He therefore prays that the examiner may be directed to examine his application as amended.

Very respectfully, &c.,

T. COWING,
By his att'y, J. DENNIS, Jr.,
W. D.

Washington, D. C., 11, 26, '69.

Words and sentences enclosed between rules erased in original.

353 To the Commissioner of Patents.

SIR: Referring to the office letter of Aug. 17, 1869, in relation to my application for a patent for wood pavement, I respectfully ask for a reconsideration of the decision of the examiner therein communicated.

My application was filed November 13th, 1865, and once rejected, December 27, 1865, but no further action was taken until recently, when an amendment was filed. In reference to this amendment the examiner writes that, "in accordance with office rule 123 (ed. of Aug. 1, '69), the application is regarded as abandoned and cannot therefore now be considered by the office."

It is respectfully submitted that the rule referred to does not justify the decision based upon it. The rule itself expressly says: "Even after a case is rejected the application is regarded as pending until after the decision of an appeal thereon or until after the party has withdrawn the case from the further consideration of the office." Now, neither of these conditions has occurred; no appeal has been taken nor has the case been withdrawn; it is, there-
354 fore, by the terms of the rule itself, still pending. It is true the rule goes on to say that if the case is left for two years without any further steps being taken "it will be regarded as abandoned and will no longer be protected by any rule of secrecy;" but the latter clause of this sentence limits and explains the former and prevents its being contradictory to the first part of the rule, the phrase "will be regarded" being evidently equivalent here to "will be treated;" it will be treated as abandoned—that is, it will no longer be protected by any rule of secrecy. It would seem to be a fatal objection to the construction put upon the rule by the examiner that the office has no authority of law whatever for prescribing a limit of two years after an application has been filed, and that this is so understood is clearly shown by the fact that in the case of Cochran (also referred to by the examiner) the present learned Commissioner thought it necessary to enter into a long and elaborate argument to justify the throwing out of a case that had first been formally withdrawn and then suffered to lie in neglect without
355 cause shown for eight years. In short, it will be found that the conclusion fairly deducible from the Commissioner's argument amounts to this and no more, namely, that an applicant must prosecute his application within a "reasonable time;" that what is a reasonable time is a question "in equity" to be decided in each case according to the circumstances belonging to that case. "*Prima facie*," says Chief Justice Cartter, as quoted by the Commissioner, "I think an applicant would have to show a reason why he should be permitted to sleep indefinitely upon his rights."

As, therefore, my application was never withdrawn, as it was suffered to lie without action only about three years and a half, and as for this delay the best possible reason is given by the affidavit and certificate herewith submitted, I trust the decision which was made will not be adhered to. I say the best possible reason, for what better could be given than that set forth in the certificate signed by

the Hon. Sam'l B. Axtell, Representative in Congress from the
356 district in which I live, and by other gentlemen of high standing, namely, that by reason of misfortunes the applicant neither had means nor was in such a mental condition as would fit him to attend to business.

Very respectfully,

TURNER COWING,
By his att'y, J. DENNIS, JR.

Washington, D. C., 10, 15th, 1869.

We, the undersigned, residents of the city and county of San Francisco, hereby certify that we have been acquainted with Major Turner Cowing from ten to twenty years last past; that until within a few years last past he was a hard working and enterprising man; that some few years since he lost his wife, an estimable lady, by death, and also his property (as he thinks, by foul means). The circumstances of the death & loss of property induced him to believe that his wife was poisoned, and greatly affected his mind and
357 changed his habits of life, for he gave up business and seemed to be incapable of doing anything except to brood over his misfortunes until quite recently.

San Francisco, Oct'r 1, 1869.

S. B. AXTELL.
ELISHA COOK.
HENRY B. JAMES.
ELI COOK.
D. B. HARVEY.
C. ROWELL, M. D.
ROB'T BATTERICK.
A. M. COMSTOCK.
ALFRED RIX.
LEONARD S. CLARK.

Affidavit.

STATE OF CALIFORNIA,
City and County of San Francisco, } ss:

This certifies that on or about the 27th day of December, 1865, I, Turner Cowing, of the city and county of San Francisco, California, did make application to the Patent Office, at Washington city, D. C., for a patent on an improved wood pavement; that said application was twice rejected by the examiners in said Patent Office, and has laid in that situation ever since, being over two years since said application; and I do hereby declare that the cause of said
358 delay of over two years was occasioned by a want of pecuniary means for prosecuting said cause, besides other good and valid reasons of a private nature; that I have never at any time abandoned the said invention to the public, and have at all times expressed myself as intending to prosecute said application to the fullest extent necessary and possible to obtain therefor a valid patent.

TURNER COWING.

Subscribed & sworn to before me this 17th day of April, A. D. 1869.

[SEAL.] HENRY S. TIBBEY, *Not. Pub.*

U. S. PATENT OFFICE,
WASHINGTON, D. C., *November 25th*, 1869.

Turner Cowing, care J. Dennis, Jr., pres't.

SIR: Please find below a communication from the examiner relating to your application for patent for wood pavement, filed Nov. 13th, 1865.

Very respectfully,

——— ———,
Commissioner.

359 EXAMINER'S ROOM No. 90.

In the matter above referred to the certificate, affidavit, and argument have been carefully considered. This application was only once rejected. The applicant did not even (as he might have done without expense or trouble) ask a second examination, and permitted the case to lie nearly four years. Meantime the device has been embodied in subsequent patents—that of Miller and Mason, March 31st, '68; that of Ballard and Waddell, Aug. 24th, '69. The statements submitted by applicant do not satisfactorily account for his laches. The decision of the office given in former official letter is adhered to.

ELLIS SPEAR, *Ex.*

Affidavit.

The undersigned, practising physicians of the city and county of San Francisco, California, being duly sworn, depose and say that they have known Turner Cowing, of the city aforesaid, for a number of years, and that from May, 1866, to the spring of 1869 he was, in their opinion, generally incapacitated for business by rea-
360 son of the abnormal mental condition with which he was afflicted.

S. F. ELLIOT, M. D.
C. ROWELL, M. D.

Subscribed and sworn to before me this 14th day of February, A. D. 1870.

[SEAL.] HENRY S. TIBBEY,
Notary Public.

To the Commissioner of Patents.

SIR: I hereby amend the specification of my application for a patent for improvement in wood pavement, filed November 13th, 1865, as follows, to wit:

1. By inserting on page 2, after line 1, the following:

"It is obvious that the wedge-shaped crevices may also be formed by setting the above-described blocks so that
Clause 1. two vertical sides and two inclined sides come together alternately, as shown in Fig. 5; and it is equally ob-

vious that two blocks having their vertical sides together may be replaced by a single block having two inclined faces, as shown in Fig. 6, without any material change of plan and with a considerable saving of labor and expense in the construction."

2. By striking out the amended claim, filed May 10th, 1869, and substituting therefor the following:

361 Clause 2. Erased by am'd't C. "1st. A wood pavement consisting of blocks having one or more inclined sides forming between them wedge-shaped spaces or crevices, which are filled with earth, gravel, or other suitable material, substantially as herein described."

"2d. In wood pavement, wedge-shaped spaces or crevices for the reception of earth, gravel, or other filling to act as a key to bind and confine the blocks in their places, substantially as described."

"3d. A wood-pavement block having one or more oblique or inclined sides so as to form, when set, wedge-shaped spaces or crevices to receive earth, gravel, or other filling, substantially as set forth."

"4th. In wood pavement, in combination with wedge-shaped crevices above, formed by the peculiar shape of the blocks, for receiving gravel or other filling, a continuous base beneath, formed by the complete fitting together of the same blocks at the bottom, substantially as specified."

The affidavit of two well-known practising physicians, fellow-townsmen of the applicants, is herewith submitted in explanation of the delay in prosecuting this case, and also an additional sheet of drawing. A reconsideration of the case is asked for.

Respectfully, &c., TURNER COWING.
By his att'y, J. DENNIS, JR.,
W. D.

Washington, D. C., Feb'y 22d, 1870.

This amendment may be considered.

SAM'L S. FISHER,
Commissioner.

362 U. S. PATENT OFFICE,
WASHINGTON, D. C., *Feb'y 24th*, 1870.

Turner Cowing care J. Dennis, Jr., pres't.

SIR: Please find below a communication from the examiner relating to your application for patent for wood pavement, filed Nov. 13, 1865.

Very respectfully,

——— ———,
Commissioner.

Words and sentences enclosed between rules erased in original.

EXAMINER'S ROOM No. 90.

In the matter above referred to an amendment and additional affidavit have been filed, bearing office mark of Feb. 22d. No good reason appears for reversing the former action of the office as given in official letters of Aug. 17th & Nov. 25th, 1869. This application is for a device shown in subsequent patents of which the applicant has been advised.

The case, therefore, falls within the 2d clause of office rules, bearing date of Jan'y 20th, 1870, and cannot be revived.

ELLIS SPEAR, *Ex.*

363 *Memoranda of Case of T. Cowing.*

Application for patent for wood pavement.

1. Filed November 13th, 1865.
2. Rejected once, December 27th, 1865.
3. Amended May 5th, 1869.
4. Letters from office Aug. 17th, 1869, declining to consider the case, it being regarded as abandoned.
5. Argument and a certificate and affidavit showing that the delay had been owing to the applicant's having been afflicted with a disordered mind.
6. Letter from office adhering to former decision. Statements submitted not satisfactorily accounting for the laches of applicant; device embodied in patent to Miller and Mason, 1868, and to Ballard and Waddell, 1869.
7. Feb. 22, 1870, affidavit filed of two practising physicians to the fact that during the long period of delay the applicant was generally incapacitated for business by mental disorder.
8. Letter from office Feb'y 24, 1870, stating that as the device had been embodied in certain patents as above, it was excluded by 2d sect. of office rules of Jan'y 20, 1870. Both the above-named cases were at first rejected in Cowing's case, and it is believed that every application for analogous device for the past three years has been referred to the same case.

Washington, 3 mo. 1st, 1870.

J. DENNIS, JR.,
Att'y for T. Cowing.

364 To the Commissioner of Patents.

SIR: I hereby erase and cancel the amended claims filed Feb'y 22d, 1870, in my application for a wood pavement filed Nov'r 13th, 1865, and substitute therefor the following:

"I do not claim a wood pavement composed of wedge-shaped blocks when the blocks are laid alternately on the
Insert. larger and smaller ends so as to form a continuous surface of wood; but—

What I do claim, and desire to secure by letters patent of the United States, is—

A wood pavement composed of blocks, each side having a single plane surface, and one or more of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth."

Washington, Mar. 21, '70.

T. COWING.
By his att'y, J. DENNIS, JR., *W. D.*

365 *Memorandum of Fee Paid at U. S. Patent Office.*

$20. H.
Inventor: Turner Cowing.
Invention: Wood pavement.
Date of payment: March 23d, 1870.
Fee, final: $20.
Solicitor: J. Dennis, Jr.
Send patent to W. W. Ballard, Elmira, N. York.

366 162-49 1865. 2–358½.

No. 101,590.

Turner Cowing (ass'or to Tallmadg- E. Brown, of Memphis, Tennessee),
Of San Francisco,
County of San Francisco,
State of California.

Constructing wood pavements.

Rec'd Nov'r 13, 1865.
Petition, " "
Affidavit, " "
Specification, Nov'r 13, 1865.
2. Drawings, " "
Model, " "
1. Cert. dep., $15, Nov'r 13, 1865.
Cash, ——.
Add'l fee cert., ——.
1. " cash, $20, March 23, 1870.
Examined March 22d, 1870. Spear.
2. Issue, Grinnell, Mar. 25, '70.
3. Patented April 5, 1870.
Recorded, vol. —, page —.
Circular, ——.
Dewey & Co., San Francisco, Cal.
J. Dennis, associate. 1865.

(Here follows diagram marked p. 367.)

T. Cowing's Improvement in Wood Pavement

No. 137 Brown & D. C. } p. 364.

No 101,590

Patented Apr 5 1870

Fig. 1

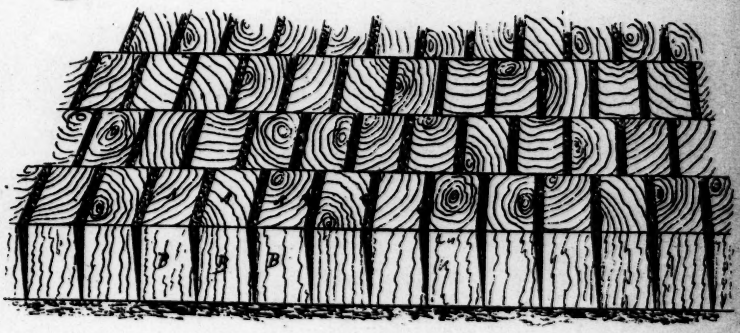


Fig. 2.

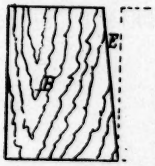


Fig. 3.

Fig. 4.

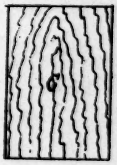


Fig. 5.

Fig. 6.

Witnesses
Wm. Dennis
Wm. H. Dennis.

Inventor
Turner Cowing
By his Atty J. Dennis Jr

368 1865.

Rejc. Dec. 27, 1865.
Letter, Aug. 17th, 1869.
L., Nov. 25, '69.
L., Feb. 24th, 1870.
Improvement in wood pavement. Spec., 50c.

369 Filed with the Examiner this 13th day of October, 1881, as DEFENDANT'S EXHIBIT D. C. No. 6. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Miller & Mason March 31, 1868, No. 76227, for improved wood pavement.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

370 No. 76227.

The United States of America to all to whom these letters patent shall come:

Whereas Alexander Miller and C. Mason, of Chicago, Illinois, have alleged that they have invented a new and useful improved wood pavement, and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventors or discoverers of the said invention, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said Miller and Mason, their executors, administrators or assigns, for the term of seventeen years from the thirty-first day of March, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making,

using, and vending to others to be used, the said invention, a
371 description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this thirty-first day of March, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-second.

[L. S.] W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
A. M. STOUT,
Acting Commissioner of Patents.

(Here follows diagram marked p. 372.)

373 UNITED STATES PATENT OFFICE.

ALEXANDER MILLER and CARLILE MASON, of Chicago, Illinois.

Improved Wood Pavement.

Specification forming part of Letters Patent No. 76227, dated March 31, 1868.

To all whom it may concern:

Be it known that we, Alexander Miller and Carlile Mason, of Chicago, Illinois, have invented certain new and useful improvements in wood pavements; and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, the figure being an isometrical view.

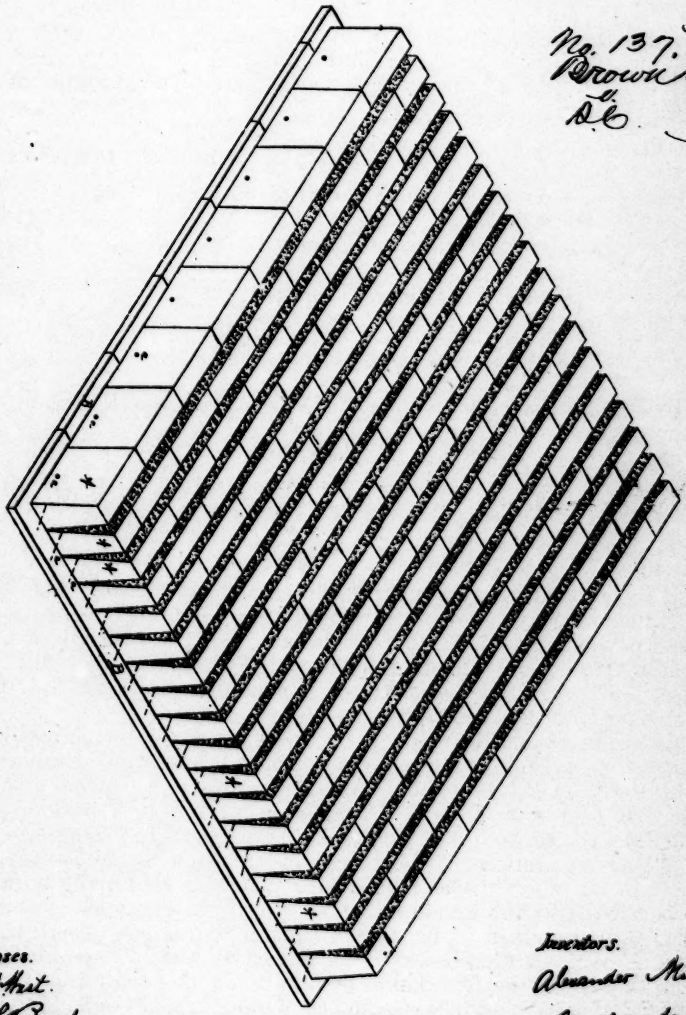
The foundation of the roadway is to be prepared in the usual manner, and having the desired configuration. A board foundation for the blocks is then laid in any known manner, and may be coated with coal-tar or any other suitable material to prevent decay.

The blocks A are to be cut from plank, and are of the usual size, having the fiber vertical. The blocks of our pavement, however, differ from all other blocks in use for pavements in having both sides beveled from top to bottom, as shown by the end view of the blocks in the drawings. The blocks thus prepared are placed in the board or plank foundation B in transverse rows. Each block may be secured to the foundation by a nail or spike, as shown at *a*. It will be observed that in consequence of the peculiar shape of the blocks those in the several rows touch each other at the bottom, but are some distance apart at the top, forming between the rows wedge-shaped channels. These channels are to be filled with concrete, or gravel and coal-tar, or other suitable substance, furnishing the necessary foot-hold for horses.

Alex. Miller and C. Mason,
Wood Pavement

No. 76,227 Patented Mar. 31, 1868.

No. 137.
Brown
v.
D.C.
p. 372



Witnesses.
C. A. Hart.
L. L. Bond.

Inventors.
Alexander Miller.
Carlile Mason

The advantages of this pavement over all others are numerous. Among others we mention the following: The blocks have a broad base on which to stand. The blocks in the several rows touching each other at the bottom, the same can be laid rapidly, and aid in supporting each other, and form a pavement much firmer and more durable than where the bases of the blocks in the several rows are some distance apart and the intervening space filled with gravel or concrete. The wedge-shaped channels *b* are not only novel, but eminently useful, since the filling in each channel is, in fact, a wedge, while use only serves to render the wedges more effective, and the form of the blocks, in connection with the wedges of concrete, renders it impossible for the blocks to be tipped, raised, or in any way moved from their proper places, so that it will not be possible for dirt, gravel, sand, or any other substance to work under the blocks. It will be observed, also, that as the blocks wear down the wearing-surface of the blocks is increased.

The blocks can be cut with less waste of material by cutting them from timber, and splitting the timber blocks with the proper bevel. This makes a strong pavement, and as the blocks have a broad base they will not cut or break the foundation when very heavily-loaded teams are driven over it.

We do not claim as our invention the wedge-shaped blocks; but

What we claim, and desire to secure by letters patent, is—

A pavement constructed of wedge-shaped blocks A, when laid so as to break joints with those of the opposite rows, in combination with a concrete filling, and in further combination with a continuous wood foundation, and so laid as to form continuous rows across the street.

ALEXANDER MILLER.
CARLILE MASON.

Witnesses:
L. L. BOND.
E. A. WEST.

374 DEFENDANT'S EXHIBIT D. C. No. 7. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records

of this office of the reissue letters patent granted Samuel Nicolson August 20, 1867, No. 2748, for improved wooden pavement.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

375 The United States of America to all to whom these letters patent shall come:

Whereas Samuel Nicolson, of Boston, Massachusetts, has alleged that he has invented a new and useful improved wooden pavement, for which letters patent were issued to him, dated August 8, 1854, the same surrendered and new letters issued to him, dated December 1, 1863—which last letters having been surrendered by him, the same have been cancelled and new letters ordered to issue to him on an amended specification, which he states has not been known or used before such invention; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant, according to law, to the said Samuel Nicolson, his heirs, administrators, or assigns, for the term of
376 fourteen years from the eighth day of August, one thousand eight hundred and fifty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention, a description whereof is given in the schedule hereunto annexed, and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this twentieth day of August, in the year of our Lord one thousand eight hundred and sixty-seven, and of the Independence of the United States of America the ninety-second.

[SEAL.] O. H. BROWNING,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
T. C. THEAKER,
Commissioner of Patents.

377 *The Schedule Referred to in These Letters Patent and Making Part of the Same.*

To all whom it may concern:

Be it known that the following is a full, clear, and exact descrip-

tion of the new and useful improved wooden pavement invented by me, Samuel Nicolson, of Boston, in the State of Massachusetts, and for which letters patent were granted to me on the 8th day of August, in the year of our Lord 1854, and for which new and reissued letters patent were granted to me on the 1st day of December, in the year of our Lord 1863, the said last-mentioned letters patent having been surrendered for the purpose of describing the same invention and pointing out in what it consists in more clear, full, and exact terms than was done in the said original or amended specifications.

The nature and object of my invention consist in providing a process or mode of constructing wooden-block pavements upon a foundation along a street or roadway with facility, cheapness, and accuracy; and also in the creation and construction of such a wooden pavement for streets and roadways as shall be comparatively permanent and durable by so uniting and combining all its parts, both superstructure and foundation, so as to provide against the slipping of the horses' feet, against noise, against unequal wear, and against rot on or from the top surface, and against rot and consequent sinking away from below.

For a clear understanding of the manner of constructing my improved wooden pavement, I refer to the accompanying drawings, with corresponding letters of reference, making part of this specification, of which drawing No. I, figure 1, represents a top view of the first plan of said pavement, and Fig. 2 of the same drawing represents a transverse and vertical section of the same; and Fig. 1 of drawing No. II represents a perspective view of the said pavement constructed and in the process of construction after the second plan or modification; and Fig. 2, drawing No. II, a further perspective view of a section of the said pavement on the first plan; and Fig. 3, drawing No. II, a further perspective view of a section of the said pavement on the second plan.

The earth of a roadway upon which my improved wooden pave-
ment of either plan is to be constructed must first be suitably
378 graded in any of the usual and well-known methods, in order to prepare it for the reception of such pavement. When the street or roadway has thus been prepared for the reception of my pavement, I then cover the surface of the roadway or bed with tarred paper, or with hydraulic cement laid over it about two (2) inches in thickness, or with a cheap flooring of boards or plank, which may also be covered with tar on one or both sides by swabbing or by dipping the boards or plank, or any other preventative to moisture may be used in connection with said foundation or support, the object and effect of such foundation being the support afforded such pavement, and to prevent the absorption of moisture from the ground by the wooden blocks. Said foundation is designated in said drawings by the letters *d d*.

In further carrying out my invention I employ two (2) sets of blocks, or a set of blocks and strips. The one set of blocks, which may be called the "principal" set of blocks, forms, when the pavement is completed, the wooden surface of the pavement, and the other or auxiliary set of blocks or strips forms no part of the wooden sur-

face of the pavement, but determines the size of the groove or channel way between the principal blocks, which is afterward to be filled with broken stone, gravel, and tar, while the principal set of blocks must be of uniform height and of suitable texture to form a proper surface for the pavement. The auxiliary set need be of no particular height or texture, but they must not permanently and entirely fill the grooving intended for the gravel, broken stone, and tar when the pavement is completed.

The principal set of blocks is cut with parallel sides, lines, or surfaces from joist or timber about four inches square or of other suitable shape and dimensions in cross-sections, being made eight inches in length. The auxiliary blocks may be formed of about half the length of the others, but they must be of such thickness or cross-sections as to form the proper boundary of the groove. The principal blocks are placed end upward upon said foundation or support and are arranged both transversely and longitudinally so that the principal and the auxiliary blocks shall be arranged alternately in each direction or run as seen in the drawings. By
379 such an arrangement spaces or cells *c c c* between the principal blocks are formed, each of said cells being bounded by four of the principal blocks. The upper ends of the principal blocks when thus placed together present a checkered or tessellated appearance, and they will exhibit the open spaces arranged together in a similar manner. Into each of these cells a small quantity or layer of coarse salt may be put. These cells are filled up with small broken stone or coarse clean gravel, the whole being firmly rammed, so that the upper surface of the mass shall be firm and level. Next, mineral or vegetable tar or pitch is to be poured over the whole surface of the pavement and into the cells or cavities containing the broken stone or gravel, so as to penetrate entirely between the pieces of stone or gravel and cement them together. The tar penetrating into the squares containing the broken stone or gravel will cause the masses of the stone to adhere firmly to the surrounding blocks and will admit of expansion of the mass by the weight of the wheels of carriages in passing over them, such expansion serving to fill up the space which might otherwise be made by shrinkage of the wooden blocks.

In order to prevent the blocks from being forced below one another in some of my modes of constructing the pavement, they may be pinned together with wooden pins extending from block to block.

Instead of the broken stone and tar, any other suitable cementing material may be employed in the cells. I prefer, however, common tar or pitch and gravel or broken stone, as such in practice has been found to operate to great advantage and to be very durable in use, and to present a surface on which it is very difficult for horses to slip or slide, as is frequently the case on ordinary pavements when the surface is wet or covered with mud. The auxiliary strip may be about half the height of the principal block; but it must not be permitted to fill up the grooves permanently and entirely when the pavement is completed or to form any part of the surface of the pavement.

My invention may be carried out in another form—that is to say, upon the plan or second modification seen in Figs. 1 and 2 of drawing No. II. The principal blocks are arranged side by side transversely of the roadway, alternately with strips of board, edgewise or vertical, in thickness about one-third of the principal block, placed transversely upon the foundation or support, and in this mode of construction so arranged as to form spaces of about one inch in thickness between the rows of principal blocks.

I would remark, as to the durability of my pavement, that for the purpose of experiment I have had some of it in use for six years before the month of March, 1854, on a road on which the travel has been very great.

Some of the advantages of my pavement are to be found in
380 the hold that it offers for the feet of horses; in the little noise that it produces while carriages are passing over it; the absence of noise resulting from the peculiar character of the material of which the pavement is composed.

This pavement is also very durable, its durability being occasioned by the friction of the travel over it, being produced upon the slightly elastic extremities of the fibers of the wooden blocks, and by its solidity and durable material in the filling.

Moisture is excluded from the wood by the materials employed for the support of the blocks; also by the preventives; also by the tarry covering which is placed over the top surface, as hereinbefore described.

My pavement has the advantage of great cleanliness in comparison with most other pavements, because, in the first place, as there is very little wear of its upper surface, very little dirt is likely to form upon it, and such as does form is quickly removed therefrom by rains and winds.

There is a further advantage in respect to facility, cheapness, and accuracy in the process or method of forming the channels, grooves, or receptacles required for the desired filling in my improved construction, which results from two sets or series of parallel sided blocks (or blocks and strips of board) employed as above mentioned. By this method of forming such channels, grooves, or receptacles the parallelism of the same and of the principal blocks forming the ultimate surface of the pavement, and the uniformity in width or size and distance one from another of such channels, grooves, or receptacles, are effected in a cheap, simple, and expeditious manner directly upon the prepared foundation resting upon the roadway, and any necessity of constructing the pavement in portable compartments is avoided.

Having thus fully described the parts and combination of parts and the operation of my improved wooden pavement, and shown various modes in which the same may be constructed and made to operate without changing the principle of its construction and operation, I claim as an improvement in the art of constructing pavements—

1. Placing a continuous foundation or support, as above described, directly upon the roadway, then arranging thereon a series of blocks

having parallel sides endwise in rows, so as to leave a continuous narrow groove or channel-way between each row, and then filling said grooves or channel-ways with broken stone, gravel, and tar or other like materials.

2. The formation of a pavement by laying a foundation directly upon the roadway, substantially as described, and then employing two sets of blocks, one a principal set of blocks that shall form the wooden surface of the pavement when completed, and an auxiliary set of blocks or strips of board which shall form no part of the surface of the pavement, but determine the width of the groove
381 between the principal blocks, and also the filling of said groove, when so formed, between the principal blocks, with broken stone, gravel, and tar or other like material.

3. Placing a continuous foundation or support, as above described, directly upon the roadway, and then arranging thereon a series of blocks having parallel sides endwise in a checkered manner, so as to leave a series of checkered spaces or cavities between said blocks, and then filling said checkered cavities with broken stone, gravel, and tar or other like material.

4. The formation of a pavement by laying a foundation directly upon the roadway, substantially as above described, and then employing two sets of blocks, viz., one a principal set of blocks that shall form the wooden surface of the pavement, and an auxiliary set of blocks that shall form no part of the wooden surface of the pavement, but determine the dimensions of the tessellated cavities between the principal blocks, and then filling said tesellated cavities with broken stone, gravel, and tar or other like material.

SAMUEL NICOLSON.

Witnesses:
STEPHEN A. GOODWIN.
DANIEL SHARP.
CHAS. F. THAYER.

(Here follow diagrams marked pages 382 & 383.)

384 DEFENDANT'S EXHIBIT D. C. No. 8. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound

Sheet 1. 2 Sheets

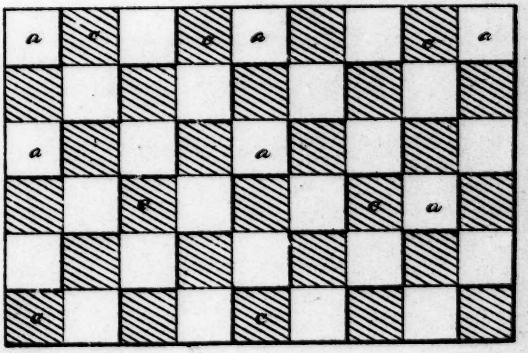
S. Nicolson,
Wooden Pavement,

No. 2,748, Reissued Aug. 20, 1867.

No. 137. Brown & C } p. 382.

Fig: 2.

Fig: 1



Witnesses:

Stephen A. Goodman
Charles T. Sleyer

Inventor:

Samuel Nicolson

S. Nicolson,
Wooden Pavement,

No. 2,748, Reissued Aug. 20, 1867.

No. 137, Brown v. D.C. } p. 383.

Fig: 1.

Fig: 3.

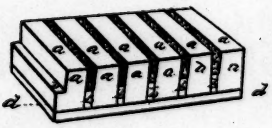
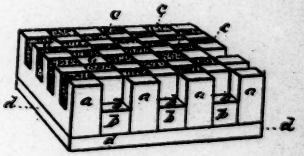


Fig: 2.



Witnesses:

Stephen A. Goodwin

Charles F. Thayer

Inventor:

Samuel Nicolson

volumes of the library of this office of the specification and drawing in the matter of the English letters patent granted Richard Hodson June 27, 1839, No. 8138, for forms of materials for building and paving, &c.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

385 A. D. 1839. No. 8135.

Hodgson's Specification.

Forms of materials for building and paving, &c.

To all to whom these presents shall come I, Richard Hodgson, of Salisbury street, Strand, in the county of Middlesex, gentleman, send greeting:

Whereas Her Present Most Excellent Majesty Queen Victoria, by her letters patent under the great seal of Great Britain, bearing date at Westminster the twenty-seventh day of June, in the third year of her reign, did, for herself, her heirs, and successors, give and grant unto me, the said Richard Hodgson, her special licence, full power, sole privilege, and authority that I, the said Richard Hodgson, my ex'ors, adm'ors, and assigns, or such others as I, the said Richard Hodgson, my ex'ors, adm'ors, or assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term of years therein expressed, should and lawfully might make, use, exercise, and vend
386 within England, Wales, and the town of Berwick-upon-Tweed, and also in all Her said Majesty's colonies and plantations abroad, the invention of "improvements in the forms or shapes of materials and substances used for building and paving and in their combinations for such purposes," communicated to me by a certain foreigner residing abroad; in which said letters patent is contained a proviso that I, the said Richard Hodgson, shall cause a particular description of the nature of the said invention and in what manner the same is to be performed to be inrolled in Her said Majesty's high court of chancery within six calendar months next and immediately after the date of the said in part recited letters patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now, know ye that, in compliance with the said proviso, I, the said Richard Hodgson, do hereby declare that the invention in the forms or shapes of materials and substances used for building and paving and in their combination for such purposes has for
387 its object to effect the following improvements in the art of construction, namely:

First. The formation of a perfectly horizontal platform without the aid of an arch.

Secondly. The formation of an horizontal platform, superseding the use of the arch, by the adoption of a peculiar but simple and regular form of construction, in which all the materials are of the same shape and the weight or pressure acts perpendicularly and equally upon each material or stone, whereas in the construction of horizontal platforms by means of arches, the only mode hitherto known, all the materials must be of different forms and inclinations, according to the situation in which they are proposed to be placed, and the pressure is lateral and dependant upon the keystones and abutments only.

Thirdly. The application of this principle of construction to buildings in general instead of the only principle hitherto known—
that of forming all the materials of a perpendicular and
388 rectangular shape—the present invention accomplishing the same result by means which add considerably to the strength and solidity of the building—*videlicet*, by producing the perpendicular equilibrium and external rectangular form by shaping all the materials or component parts according to the precise, fixed, and determined acute angle set forth in the drawings hereunto annexed.

The invention, in fact, consists in forming or shaping materials or substances according to a new section of the cube (such invention being communicated to me by a foreigner and called by him the stereotomy of the cube), which section is obtained by dividing the cube into eight equal prisms or parts, four of which are to be taken from the perpendicular corners of the cube and the other four to be left remaining as a compact, solid body, but presenting the appearance of two solids or parallelopipeds of equal shape and size lying obliquely across each other and inclined in opposite directions, the angle of their inclination being determined and invariably fixed, as
represented by the drawings annexed hereto, and being found
389 by logarithmic calculation to be exactly sixty-three degrees twenty-six minutes five seconds and eight-tenths of a second.

The mode of ascertaining and forming this angle with accuracy and correctness, and upon which the success of the invention wholly and entirely depends (inasmuch as it is the only angle which causes the diagonal joining the obtuse angles of the two parallelopipeds to fall in a perpendicular straight line, and which therefore produces an inclined surface having the property of keeping a perpendicular tendency), is to draw a square representing one side of the cube, and to divide the upper side thereof into two equal parts, and from the point of division to draw an oblique line to the extreme point on the right at the bottom of the square and to divide in like manner the bottom side of the square into two equal parts, and from the point of division to draw another oblique line to the extreme point on the left at the top of the square, thus forming two oblique par-
allel lines or a parallelogram, and in the same manner
390 on the square representing the opposite side of the cube to form two oblique parallel lines, but in the inverse or contrary way—that is to say, to divide the top side of the last-men-

tioned square into two equal parts, and from the point of division to draw an oblique line to the extreme point on the left at the bottom of the said square; also to divide in like manner the bottom side of the said square into two equal parts, and from the point of division to draw an oblique line to the extreme point on the right at the top of the said square, forming two parallel lines or a parallelogram, as before, which operations will present at the upper and lower surface of the cube two squares united at the angles and forming one-half of the whole cube.

I further declare that the shapes and forms before described, with their combinations, are applicable generally to materials and substances employed in building and paving, whether of stone, iron, bricks, or wood, and that though the said shapes and forms
391 must in all cases and materials be essentially the same, yet that they may be usefully obtained and combined together in different ways, according to the nature and quality of the materials employed, in the manner hereinafter mentioned.

First. The shapes and forms before described are, in the case of stone, marble, or other similar substances, to be formed by sawing or cutting the same out of the full size of the cube and leaving them entire in their relative dimensions, so as to be ready to be placed together either horizontally, vertically, or obliquely, as the case may require, and with or without the joints being filled with cement, mortar, or plaster.

Second. Iron may be wrought or cast from models made for the purpose, and, although the angles are to be strictly the same, the thickness may be modified according to circumstances; and the mode of uniting them is by screwing or otherwise securing the two oblique surfaces together.

Third. Bricks may be of the same shape and form as described for the stone and put together with or without cement or mor-
392 tar, but it is not necessary to make them so thick as described under the head No. 1. Bricks may also be made singly and put together when used so as to produce the same shape and forms as if made and moulded in a solid body, and in doing so it is proper to form the separate parts, one with a recess and the other with a projection, to fit; bricks of the same shape may also be made with holes or grooves therein, to be applied in certain cases to the roofs of furnaces and similar erections, not only for the purpose of giving a divided, free, and more diffused issue to the head——

Fourth. The shape and form in wood must be precisely the same as described for the stone, &c., No. 1; but in order to lessen the expense both in labor and material attendant upon producing the shape from a solid tube the same form may be obtained by making the solid body from two equal parts or blocks, which must be pegged or dowelled together at the centre of each isosceles triangle forming the lozenge presented by their lateral surfaces, the peg or
393 dowel being in the centre of each isosceles triangle, as will appear in the said drawings hereunto annexed. For wood paving a peculiar disposition of the materials or blocks thus shaped,

and, if necessary, pegged or dowelled, will be required, inasmuch as the blocks will have to bear a great superincumbent weight, which will be continually moving and rolling over them. They should therefore be laid upon solid, firm, dry ground, or other solid, firm, dry foundation.

As to the depth of the blocks, in ordinary cases it will not be necessary to have them more than ½ the depth of a whole cube (say one of twelve inches), as described in Nos. 1 and 4, but the angle in all cases to be the same; the solid body to be formed by two separate blocks dowelled together with two strong pegs or dowells placed in the centre of each isosceles triangle forming the lozenge which represents the two lateral faces of the blocks, as described in the annexed drawings. Each row of blocks should be also pegged together on the same principle, or
394 they may be united by any bituminous compound usually employed for similar purposes, so as to form one compact body and prevent the blocks being disengaged or separated one from the other. It is necessary to add that the blocks may be packed up together in the workshop in large, square, or oblong masses, as shewn in the said drawings hereto annexed, so as to be laid down more speedily on the prepared ground, where these masses must be fastened or united together either with pegs or with any bituminous compound usually employed for similar purposes. It should be further observed that the wooden blocks must and will be necessarily placed nearly vertically as the tree grows. It should also be stated that according to the traffic in the roads or streets where the wood paving is intended to be laid down its depth or substance must be increased or diminished according to circumstances.

The wood paving may in most cases be laid across the roads or streets from side to side, so as to terminate each row of blocks
395 or square masses of blocks against the stone channel or the *kir*b-stone, as the case may be, and the blocks or square masses of blocks must be cut or terminated in two perpendiculars so as to form proper abutments to each other or to the *kir*b-stone. In some cases, however, where it may be necessary, the square masses of blocks may be placed in various directions, such as, for instance, in a diagonal line. The top face of the blocks may also be usefully grooved at distances not exceeding six inches apart to prevent the sliding or slipping of horses.

Descriptions of the Drawings.

Drawing No. 1, consisting of six figures, represents substances or materials formed or shaped according to the aforesaid division of the cube. A and B shew that portion of the cube which in a solid body forms the general shape (consisting of two parallelopipeds) to be given to all substances and materials, the figures 1 and 2 denoting one moiety or parallelopiped of such solid body and 3 and 4
396 the other moiety or parallelopiped, placed and crossing each other in opposite directions and joined together in such cases where they cannot conveniently be formed out of or of one solid

mass. C, D, E, and F represent the perpendicular corners of the cube which are to be taken out of it to obtain the forms and shapes shewn by the figures A and B when cut from the solid.

Drawing No. 2, consisting of six figures, represents the two modes of obtaining the exact angle with correctness.

A and B shew the two parallelograms of the front and back faces of the solid body or parallelopiped extracted from the cube and placed in opposite directions, as directed in the drawing No. 1.

C & D shew the two isosceles triangles of the front and back faces of the figure B, in drawing No. 1, and figure E shews the two squares of the upper surface united at the angles, forming one-half of the whole square, and figure F shews the similar square of the bottom surface, placed, of course, the contrary way.

Drawing No. 3 shews the principle applied to platforms in
397 bricks or stone, and which are formed by uniting the several solid portions of the cubes laterally, the joints being united together with or without cement or mortar.

This figure is intended to represent the application of the principle to platforms instead of arches, over all windows and other similar apertures, to roofs and floors of houses and buildings, bridges, and other similar purposes.

Drawing No. 4, consisting of two figures, represents the elevation of a column, showing the two different sides, and built, according to the same principle, by placing the several solid portions of the cube one over the other, in order to evince the advantage arising from that shape, namely, that by divesting the cube of one-half of its substance and weight the form which remains still preserves the same principle of equilibrium and perpendicular tendency as if it had remained in its entire and solid state.

Drawing No. 5, consisting of three figures, being Nos. 1 and 2 of those figures, represents frames of wrought or cast iron bolted
398 together, upon the same principle, and at the same angle as previously directed, and No. 3 shews the plan.

Drawing No. 6, consisting of five figures, represents the different kinds of bricks to which the principle is applicable, the advantages of which are precisely the same as described for other substances, and particularly for roofs of furnaces, ovens, and other similar erections, some of which may require *of* pierced or open work.

Drawing No. 7, consisting of eight figures, represents the principle as applied to wood pavement. No. 1 shews the shape of the block, supposing to be cut or made out of one solid piece of wood. No. 2 shews one of the parallelopipeds cut separately, to be afterwards coupled with another similar one by pegs, as in figure 1. No. 3 shews how, in some instances, greater strength may be obtained by means of intercutting or dovetailing the blocks at their isosceles triangles. No. 4 shews the mode of pegging, in order that one block may be united to two others adjoining. No. 5
399 shews the exact position of the two pegs in the centre of each isosceles triangle, as shewn by the letters A and B. No. 6 shews a range of the blocks, as laid across the road or street, pegged and united together. Nos. 7 and 8 shew how the blocks

may be in the workshop disposed and packed up in large oblong or square masses, and the lines R L show the direction in which these masses may be placed across the street, R being the right and L the left side of the street.

Drawing No. 8, consisting of one figure, represents the principle as applicable to railways or other similar purposes, in one block cut solid out of one piece of wood or in two united or bolted together.

Having thus described the nature of the invention and the manner in which the same is to — carried into execution, I would have it understood that what I claim the invention of is—

First. The mode of forming or shaping materials or substances for building, paving, and other purposes, according to the division of the cube herein described.

400 Secondly. The mode of employing, in combination for building, paving, and other purposes, blocks, materials, or substances so framed or shaped.

In witness whereof I, the said Richard Hodgson, have hereunto set my hand and seal this twenty-seventh day of December, in the year of our Lord one thousand eight hundred and thirty-nine.

[L. S.] R. HODGSON.

Signed, sealed, and delivered by the within-named Richard Hodgson in the presence of—

PATRICK DRUMMOND,
Sol'r, Croydon.

And be it remembered that on the twenty-seventh day of December, in the year of our Lord 1839, the aforesaid Richard Hodgson came before our said lady, the Queen, in her chancery and acknowledged the specification aforesaid and all and everything therein contained and specified in form above written; and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the twenty-seventh day of December, in the year of our Lord one thousand eight hundred and thirty-nine.

[On margin:] Drummond, extra.

(Here follows diagram marked page 401.)

402 DEFENDANT'S EXHIBIT D. C. No. 9. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound volumes of the library of this office of the specification and drawing in the matter of the English letters patent granted John Lindsay June 14th, 1825, No. 5185, for construction of roads & wheels to be used thereon.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

403 A. D. 1825. No. 5185.

Lindsay's Specification.

Construction of roads and wheels to be used thereon.

To all to whom these presents shall come I, the Honorable John Lindsay, of the Island of Herme, nearGurnsey, send greeting:

Whereas His Present Most Excellent Majesty King George the Fourth, by his letters patent under the great seal of Great Britain, bearing date at Westminster the fourteenth day of June, one thousand eight hundred and twenty-five, in the sixth year of his reign, did, for himself, his heirs, and successors, give and grant unto the said John Lindsay his especial licence that I, the said John Lindsay, my ex'ors, adm'ors, and assigns, or such other as I, the said John Lindsay, my ex'ors, adm'ors, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and law fully might make, use, exercise, and vend within England, Wales,
and the town of Berwick-upon-Tweed, and also in His said
404 Majesty's colonies and plantations abroad, my invention of "certain improvements in the construction or formation of

the horse and carriage ways of streets, turnpike, and other roads, and an improvement or addition to wheels to be used thereon," in which said letters patent there is contained a proviso obliging me, the said John Lindsay, by an instrument in writing, under my hand and seal, particularly to describe and ascertain the nature of my said invention and in what manner the same is to be performed, and to cause the same to be inrolled in His said Majesty's high court of chancery within six calendar months next and immediately after the date of the said in part recited letters patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now, know ye that, in compliance with the said proviso, I, the said John Lindsay, do hereby declare that the nature of my said invention and the manner in which the same is to be performed are particularly described and ascertained in and by the drawing hereunto annexed and the following description thereof:

405 I shall here observe that the great desire that prevails at present for covering or constructing streets and roads with broken granite or other hard and durable stones may be productive of much service to the public when judiciously applied, and more particularly so when combined with certain portions of pavement so placed as to bear the weight of carriages and receive the action of the wheels, which has hitherto been found so destructive to streets or roads covered with broken stones only. In order to produce the best effect from a combination of pavement, broken granite, or other hard stones I construct streets, turnpike and other roads in the following manner—that is to say:

Fig. 1 represents a portion of a road or street constructed in my improved way. A A represents a line of granite curb-stones laid transversely in the centre of the street or road, being sufficiently wide to permit the wheels of two carriages to roll upon them and pass each other. These should be laid upon a firm base of hard materials, by which means they will form a very permanent

406 and lasting plane surface. B B are similar lines of granite or other hard stones placed parallel to and equidistant from the centre line upon which the wheels on one side of the carriages roll. These are to be laid transversely also and form on each side of the street or road an even and permanent surface for the wheels on one side of any carriage to roll upon. C C represents a gutter formed of granite hollowed out of sufficient depth to receive the rain or other water that falls upon the surface and convey it to the gratings, as usual. By these means the gutters will be capable of sustaining the weight of any carriage without the risk of being disturbed, as is so frequently the case in the way they are constructed by the common method of paving. D D D D represents the intermediate portions of the surface between the lines of stone before named, paved with the common or usual sized paving stones, but the method of arranging or laying them is as follows: Instead of laying them with their broadest ends upwards, I lay them with the broadest ends downwards, and, as each stone is made of a wedge form, this leaves a considerable space open between the stones. These I close

with smaller stones of a wedge form, which, being carefully
407 placed and well rammed down, after a sufficient quantity of fine gravel or grout has been worked between them, will make a pavement nearly as substantial as a solid sheet of granite, well suited to enable horses to travel on safely, while the lines of large transverse stones will form a surface to receive the action of the wheels, and be nearly equal in point of smoothness to a well-formed railway.

Fig. 2 represents a transverse section of the street or road so formed, in which the arrangement of the smaller or intermediate pavement will be more plainly seen; *a a a* shew the common stones laid with their broadest ends downwards, and *b b b* represent the wedge-formed pieces that are driven in to make the whole as nearly solid as possible. By placing or arranging the stones in the way herein described a great quantity of the small wedge-formed pieces or chips of granite usually produced in working a quarry will be brought into use and essentially contribute to render pavement with the common stones much more permanent and effective than any method heretofore known or made use of.

408 Fig. 3 represents a portion of the centre of a turnpike or other road with two lines of my improved wheel tracks formed of large stones laid transversely. The intermediate space is covered with broken granite or other hard and suitable material, and in order to render the tracks for horses as permanent as possible I would recommend the under surface to be covered with rough stones laid with their broadest ends downwards, as shewn at E E, and between these wedge-formed pieces should be laid to fill in the interstices, over which a stratum of broken granite should be laid of the usual thickness, and when finished the whole should lay rather higher than the surface of the transverse stones of the wheel tracks. F represents the intermediate space of the road between the wheel tracks made complete. When roads are constructed in this manner they will be capable of sustaining almost any weight, which will be moved with much less exertion by the horses, and the great complaint of wear of the roads will be most materially presented, it being a well-established fact that all the great
409 public roads are delapidated almost entirely by the action of the wheels of heavy-laden carriages, and not by the feet of horses.

The construction of a cheap and durable railway that might be laid upon a public road has been very much sought for, yet no plan has hitherto presented itself that would answer the purpose, but it may be effected with the greatest ease, durability, and comparative cheapness in the following manner:

Fig. 3, G G G, represents a line of paving stones laid on the side of the road out of the way of the usual carriage and horse track. *c c* is a triangular wrought-iron bar united in lengths ten feet long and one inch and a half thick. The end of each length or bar is bent at right angles downwards, the bent ends being about an inch and a half in length. These enter holes formed in the large stones H H, and are made fast by pouring in melted lead in the

usual manner. The line of stones are laid upon a well-rammed surface of very hard materials, and every care should be taken to make the foundation for them as permanent as possible, and in this simple way a very effective and durable railway will be pro-
410 duced. When such a railway is used on each side of a road the rims of the two near side wheels of the wagons that are used upon them should be grooved so as to fit the triangular bar, as shewn by dotted lines in Fig. 4. The other two wheels may be constructed in the usual way, as they will have to roll on the line of stones seen at I I in Fig. 3, and for this purpose the stones of that line are made as wide as the centre line, so that the common carriages may pass on the same line of stones without producing any impediment to the carriages on the railway.

Fig. 5 represents a side view of a fragment of the iron rail of the real size. *d* shews the end that is bent down to enter the hole formed in the stone, and being made rather broader at the bottom, and the hole being also rather under-cut, when the lead is poured in, it will be very firmly and immovably fixed.

Fig. 4 shews a section across the triangular bar. The dotted lines represent the shape of the grooved wheels that are used to run upon the rail, and by which they are kept in their right course.

411 Fig. 6 represents a vertical and longitudinal section of a portion of the paved line that supports the triangular rail. The way it is inserted and secured in the stone will be clearly understood by this figure, the same letters of reference being used as in figure 3.

Figure 7 representss a line of pavement formed of granite stones. The upper surface of these are grooved to receive a line of cast-iron plates with cogs formed upon them, as shewn at *e e e*. These plates are fixed to the stones in a similar way to that described in the triangular bar, the projections on each plate being cut with it, each being about three feet long.

Fig. 8 represents a side elevation of a fragment of the iron plate *e e*, and also two of the cogs cast with it. This and Fig. 9 are drawn to a scale of six inches to a foot.

Fig. 9 shews a transverse section of the plate. The part that is fixed in the stone is shewn in each figure at *f f*. When such a rail-
412 way is laid down properly it may be used either with the common sort of rail wagons, or it may — used in combination with a locomotive engine by applying my improved wheels to the wagon or carriages.

Fig. 10 represents a front view of a cast-iron cog-wheel. The cogs are formed, as usual, on the periphery, being about two inches thick, and upon each side a projecting rim is formed, seen at *g g*. *h h* represents a cast-iron ring made to fit the circumference of the projecting rim *g*. There is a similar ring on the other side of the wheel, each being united to the wheel by bolts and nuts. The front rim has a part removed in order to shew the cogs on the periphery of the wheel, and also to shew that each rim, *h h*, projects beyond the ends of the cogs about an inch all round. When a wheel thus constructed is placed upon the rail the cogs will gear into those formed

on the rail, and the projecting rims *h h* will rest and roll upon the surface of the granite stones. It will, of course, be understood that only one such a wheel will be necessary for a locomotive engine.

The other wheel to be used on the same side must be made
413 the same in every particular, except the cogs, which are to be omitted. If wheels are constructed as herein directed, without cogs, they may be cast in one entire piece, and when properly finished they will pass over the cogs on the rail, while the sides of the line of cogs will serve as well as a common rail to keep them in a proper direction. Of course, it will be understood that it is only on one side of each carriage that such wheels will be wanted, because the line of granite that is shewn at I I will only require wheels of the common construction.

Fig. 11 represents a vertical section of the cog-wheel and the two rings taken through the centre of Fig. 10. Where it is necessary that the rail wagons should deviate from a straight line the rails may be joined at one end, as usual, which will enable the driver to shift them at pleasure, so as to correspond with any new line of direction that may be required.

And I hereby further declare that my improvements consist—

414 Firstly. In constructing wheel tracks for carriages on streets or roads with curb-stones laid transversly.

Secondly. I do not claim the sole right to pave with stones having their broadest ends laid downwards.

Thirdly. I also claim the sole right to combine a single railway with my improved wheel tracks, by which means all the advantages of a common railroad will be obtained, while the passage for carriages of all other descriptions remains without obstruction.

Lastly. By combining and adding projecting rings to cog-wheels in the way I have shewn they may be made to support a part of the weight in the carriage to which they are fixed, while the cogs will be used to propel it forward, if locomotive engines are used, forming altogether considerable improvements in the construction of horse and carriage ways in streets, turnpike and other roads, and an improvement or addition to wheels to be used therein.

In witness whereof I, the said John Lindsay, have hereunto
415 set my hand and seal this thirtieth day of November, in the year of our Lord one thousand eight hundred and twenty-five.

JOHN LINDSAY. [L. S]

And be it remembered that on the first day of December, in the year of our Lord 1825, the aforesaid John Lindsay came before our said lord the King in his chancery, and acknowledged the specification aforesaid and all and everything therein contained and specified in form above written, and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the second day of December, in the year of our Lord one thousand eight hundred and twenty-five.

[On margin:] Harvey.

(Here follows diagram marked p. 416.)

417 DEFENDANT'S EXHIBIT D. C. No. 10. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound volumes of the library of this office of the specification and drawing in the matter of the English letters patent granted Abraham Henry Chambers February 28, 1824, No. 4906, for preparing and paving roads and ways.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

418 A. D. 1824. No. 4906.

Chambers' Specification.

Preparing and paving roads and ways.

To all to whom these presents shall come I, Abraham Henry Chambers, of New Bond street, in the county of Middlesex, Esquire, send greeting:

Whereas His Present Most Excellent Majesty King George the Fourth, by his letters patent under the great seal of Great Britain, bearing date at Westminster the twenty-eighth day of February, in the fifth year of his reign, did, for himself, his heirs, and successors, give and grant unto me, the said Abraham Henry Chambers, his especial license, full power, sole privilege, and authority that I, the said Abraham Henry Chambers, my ex'ors, adm'ors, and assigns, or such others as I, the said Abraham Henry Chambers, my ex'ors, adm'ors, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make,
419 use, exercise, and vend within England, Wales, and the town of Berwick-upon-Tweed, and also in all His said Majesty's colonies and plantations abroad, my invention of "improve-

ments in preparing and paving horse and carriage ways;" in which said letters patent there is contained a proviso obliging me, the said Abraham Henry Chambers, by an instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said invention and in what manner the same is to be performed, and to cause the same to be enrolled in His Majesty's high court of chancery within six calendar months next and immediately after the date of the said in part recited letters patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now, know ye that, in compliance with the said proviso, I, the said Abraham Henry Chambers, do hereby declare the nature of my said invention to consist in an arrangement of conical-formed stones or other hard mineral or silicious substances of the said form placed on their natural bases, cemented together at their lower
420 extremities and having their remaining interstices filled with loose materials insoluble in water, such stones so arranged constituting an improved pavement or carriage road; and, in further compliance with the said proviso, I, the said Abraham Henry Chambers, do hereby further describe the manner in which I perform my said invention by the following description thereof, reference being had to the drawing annexed, and the figures marked thereon (that is to say):

Description of the Drawing.

Fig. 1 represents a transverse section of my said improved pavement or carriage-way. A is supposed to be the natural bed of earth on which the pavement is to be laid, and which should be prepared, if loose or yielding, by ramming or such other process as will render it a firm and solid bed for the reception of the pavement. Its surface should be arched in manner described by this section, and it should be furnished with the ordinary side gutters or drains, B B. Besides the drains B B there should also be what I term
421 under drains, shewn at C C in the drawing. The position of these drains, as regards their distance from the side gutters, is material, since it is found that the water lodges more at the sides of the arch than on its centre, and the distance shewn in the drawing is that which I most approve for an arch of the span and height therein described; but, of course, this said distance would require to be regulated in some measure by the height of the arch. These under drains I propose should be filled with broken bricks or other matter adopted for the purposes of filtration or durability. Having prepared a foundation or bed in a firm and solid manner, as hereinbefore described, I proceed to cover the same with hard granite or other hard stones, *r r r*, cut in the form represented in the drawing and placed with their large end or natural base downward. I then grout or cement these stones together at their bases by a good strong cement, such as good Abberthawr lime,
422 with a preparation of the patent English pozzolane or any other cement which will resist the action of water. I propose

that the stones should be bedded in this cement to about one-third of their height, as shown by the yellow line in the drawing, which is intended to represent the cement. The upper part of the interstices that will then be left vacant I propose to fill with finely broken flints, the said patent English pozzolane powdered, or any other similar substance not soluble in water. By this arrangement it will be seen that no part of any stone can be acted upon by a pressure downwards without having a corresponding base to support the said pressure, while the substance filling up the upper part of the interstices before mentioned not being soluble in water no mud will be created therefrom.

Fig. 2 is a plan of my said pavement and of the bed or foundation — is prepared to receive the stones, the same letters being used as are adopted in *in* the foregoing figure to describe corresponding parts.

Fig. 3 represents the stones in that form, which I consider
423 the best calculated to effect the required resistance to downward pressure, the size of which should be eight inches square at the apex, twelve inches square at the base, and ten inches high.

Now, whereas I have hereinbefore described the shaped stones which I conceive to be the best adapted for the purpose of my said improved pavement or carriage-way, but as the cutting of stones of a sufficient hardness for this purpose into this exact shape would be attended with great expense, I propose for all ordinary pavements to make use of stones broken and hewn in the manner in which they are usually prepared for paviours, but taking care, in their application to the said improved pavement or carriage-way always to lay their natural bases or largest end downwards, which is the exact reverse of the mode adopted by paviours; and such an improved pavement or carriage-way as aforesaid, formed by a series of stones of a conical form placed side by side and with the natural base or largest end of each of them turned downwards, and with such
424 bases so turned down as aforesaid cemented together as aforesaid, and with the upper part of the intermediate spaces or interstices aforesaid filled with powered or finely broken matter not soluble in water as aforesaid, being, to the best of my knowledge and belief, entirely new and never before used in these kingdoms, I do hereby declare this to be my specification of the same, and that I do verily believe this my said specification doth comply in all respects, fully and without reserve or disguise, with the proviso in the said hereinbefore in part recited letters patent contained. Wherefore I do hereby claim to maintain exclusive right and privilege to my said invention.

In witness whereof I, the said Abraham Henry Chambers, have hereunto set my hand and seal this twenty-first day of August, in the year of our Lord one thousand eight hundred and twenty-four.

AB'M H'Y CHAMBERS. [L. S.]

425 And be it remembered that on the twenty-first day of August, in the year of our Lord 1824, the aforesaid Abraham Henry Chambers came before our said lord the King in his chancery, and acknowledged the specification aforesaid and all and every-

thing therein contained and specified in form above written, and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the twenty-third day of August, in the year of our Lord one thousand eight hundred and twenty-four.

[On margin:] Stephen.

(Here follows diagram marked page 426.)

427 DEFENDANT'S EXHIBIT D. C. No. 11. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Matthew J. McBird July 22, 1856, No. 15380, for improved machine for sawing stone or marble.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this first day of October, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

428 No. 15380.

United States of America to all to whom these letters patent shall come:

Whereas Matthew J. McBird, of Logansport, Ind., has alleged that he has invented a new and useful improved machine for sawing stone or marble, which he states has not been known or used before his application; has made affirmation that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said machine, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in

the said machine and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Matthew J. McBird, his heirs, administrators, or assigns, for the term of fourteen years from the twenty-second day of July, one
429 thousand eight hundred and fifty-six, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said machine, a description whereof is given in the words of the said McBird in the schedule hereunto annexed and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this twenty-second day of July, in the year of our Lord one thousand eight hundred and fifty-six, and of the Independence of the United States of America the eighty-first.

[SEAL.] ROBERT McCLELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
C. MASON,
Commissioner of Patents.

(Here follow diagrams marked pp. 430, 431, & 432.)

433 The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, Matthew J. McBird, of the city of Logansport, county of Cass, in the State of Indiana, have invented a new and improved mode of sawing stone or marble into tapering and other forms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which Fig. 1 is a perspective view of a model exhibiting my improvement. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a horizontal section or plan. Similar letters of reference indicate corresponding parts in the several Figs.

To enable others skilled in the art to make and use my improvement or invention I will proceed to describe its construction and operation. A, Fig. 1, represents a quadrangular base to the general frame-work. B is a standard or support in which are bearings
434 to shafts *a* and *b*. C C C C are uprights supporting and guiding frames *d d*, and in these frames the saw-sash *e* plays, resting on friction rollers *i*. *h h h* are saws lying horizontally and strained in the sash *e* in the usual manner. Said saws and sash are propelled, controlled, and operate in all respects in the ordinary way as when sawing stone or marble into right-angular form.

D is a circular turn-table, having a segmental rack, *f*, attached to

3 Sheets, Sheet 1.

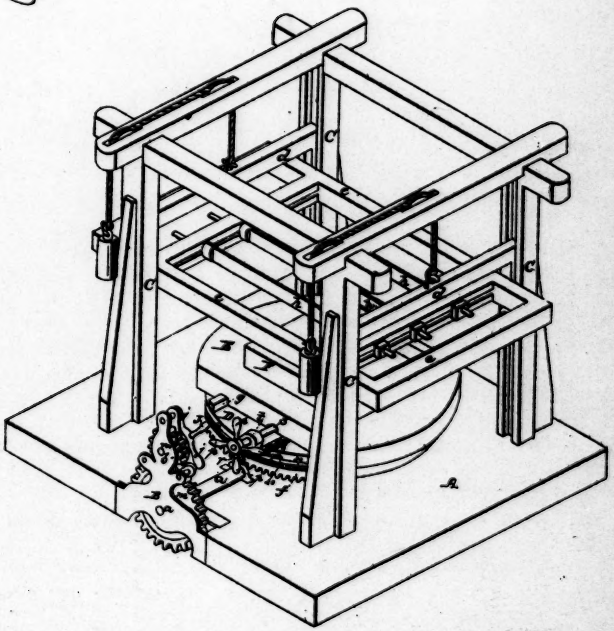
M. J. McBird,

Sawing Stone.

No. 15,380. Patented July 22, 1856.

No. 137.
Brown
v.
D. C.
} p. 430.

Fig. 1.



Inventor,
Mather & McBird

No. 137.
Brown
v.
Mc.

h. 431

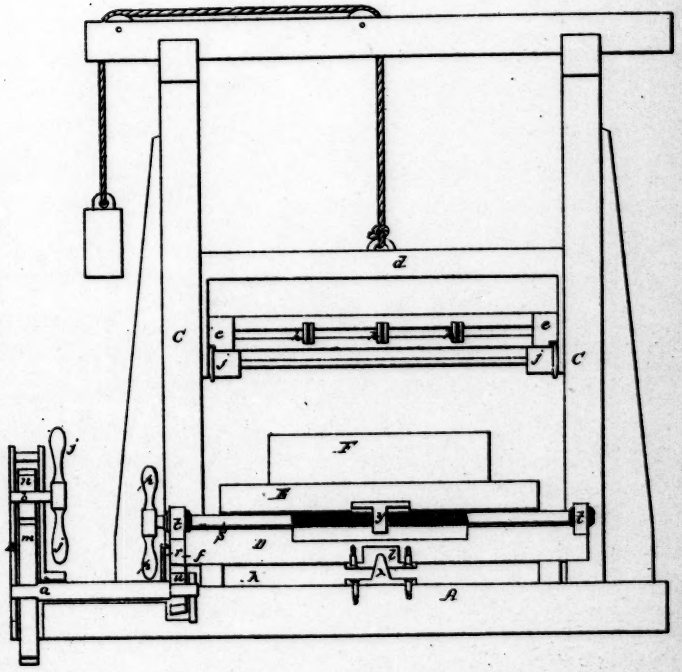
3 Sheets, Sheet 2.

M. J. McBird,

Saming Stone.

No 15,380. Patented July 22, 1856.

Fig. 2.



Inventor;
M. J. McBird

3 Sheets, Sheet 3.

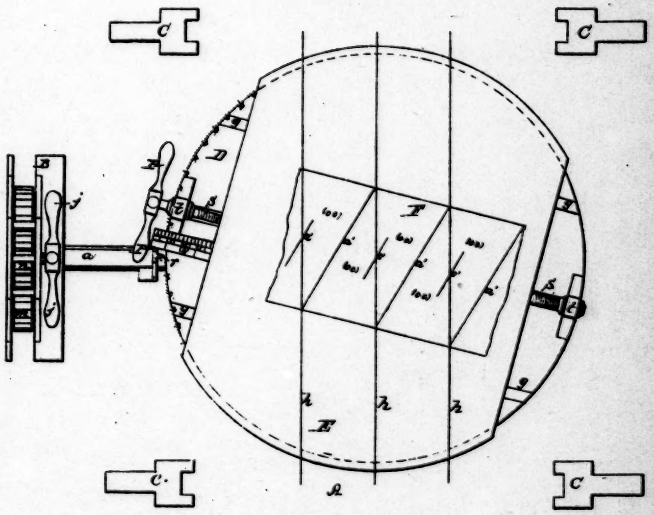
M. J. McBird,

Sawing Stone.

No 15,380. Patented July 22, 1856.

No. 137. Brown v. &c. } p. 432

Fig: 3.


C
C
C
C
D
E
F
h
h
h
g
g
a
i
j
k
k
k

one side, as shown. Said turn-table has a rotating axis or centre, *l*, fitted on the pivot *x*, around which it revolves, and is supported and moves on a circular way, *k*, as shown in Fig. 2.

E is an oblong platform or bed having straight sides and round formed ends, and on which lies the stone or marble F to be sawn. Said platform or bed has a free lateral movement horizontally on permanent ways *g g*, lying upon and attached to turn-table D, as shown in Figs. 1 & 3. S is a rod having a screw thread thereon, and lies horizontally under the centre of platform or bed E, and confined longitudinally in bearings *t t*, attached to and forming part of turn-table D. Said rod or screw S passes through and takes effect into the nut or female screw *y*, attached underneath and in the centre of platform or bed E, as is plainly shown in Fig. 2. P P P P, seen in Fig. 1, are arms attached to screw or rod S. By revolving these arms the screw or rod S is operated and the platform or bed E made to move laterally.

v is a rule or gauge attached to the turn-table D, having degrees and figures marked thereon, and over which moves the platform or bed E. The object of said rule or gauge is to enable the operator to adjust the platform or bed in the position required with greater ease and precision.

r, Fig. 1, is an index hand attached to base A, and points to the degrees and figures marked on rack *f*, by means of which index hand and figures the turn-table D may be adjusted with great precision at equal distances either way from any given position or point.

Arms *j j* and pinion *n* are both attached to shaft *b*, the latter gearing into cog-wheel *m*. Cog-wheel *m* and pinion *n* are attached to shaft *a*, the latter gearing into rack *f*, thus forming a connection between arms *j j* and turn-table D in transmitting power applied to the arms *j j* to said turn-table as a means of revolving the same.

Having thus described the construction of my improvement, its operation is as follows:

The stone or marble F is placed on the platform or bed E in the usual way, as shown in Fig. 3. The arms *j j* is then turned, which causes the turn-table D to revolve, thereby enabling the operator to adjust the stone or marble F in any oblique position required under parallel saws *h h h*, as shown in Fig. 3. Said saws are then made to saw down through the stone or marble F, cutting one side of each of the tapering pieces (*o o*) (*o o*) (*o o*) (*o o*) (*o o*) with use of three saws.

The saws *h* are then elevated again to their former position and the turn-table D reversed in its position equal to its first degree of obliquity, bringing the saws *h* over the material F so as to strike the lines *o' o' o'*, and, if made to saw down, will cut the stone or marble into diamond-shaped pieces, such as are used in constructing stone or marble flooring; but should the stone or marble F be moved laterally, by operating the arms P P P half the distance existing between the saws *h* prior to sawing down the aforesaid second time, the said saws will then be brought over the lines *a' a' a'*,

and if made to saw down would cut the other sides of the tapering pieces (*o o*) (*o o*) (*o o*) (*o o*) (*o o*), as Fig. 3 clearly shows.

The material being sawn, being thus controlled, by varying the extent or degree of movement of the turn-table D and the platform or bed E, and also the distance between the saws *h*, as may be required, acute angular or obelisk forms, having any degree of taper, may be sawed with great ease and rapidity with the use of the common parallel gang-saw, in contradistinction to the use of obliquely running saws in sawing tapering forms or to changing the position of the stone or marble in any other manner on the permanent platform or bed now in use.

438 What I claim as my invention and desire to secure by letters patent is the combination of the turn-table D and the lateral-moving platform or bed E, when connected and arranged substantially as shown, so that when the turn-table D is revolved the stone or marble F will be brought in oblique positions under parallel-moving saws *h*, while the platform or bed E, when that is given a lateral transverse movement to the parallel position of saws *h*, the stone or marble F is given a corresponding movement and brought to the position required, for the purposes herein set forth.

MATTHEW J. McBIRD.

Witnesses:
HORACE COLEMAN.
JONA. FARQUHAR.

439 DEFENDANT'S EXHIBIT D. C. No. 12. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted C. B. Normand November 14, 1854, No. 11946, for improved method of controlling the log for curved & bevel sawing.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.]

E. M. MARBLE,
Commissioner.

440 No. 11946.

United States of America to all to whom these letters patent shall come:

Whereas C. B. Normand, of Havre, France, has alleged that he has invented a new and useful improved method of controlling the log for curved & bevel sawing, which he states has not been known or used before his application; has made oath that he is a subject of the Emperor of France; that he does verily believe that he is the original and first inventor or discoverer of the said method, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of three hundred dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said method and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said C. B. Normand, his heirs, administrators, or assigns, for the term of fourteen years from the twenty-seventh day of October, one
441 thousand eight hundred and fifty-two, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said method, a description whereof is given in the words of the said Normand in the schedule hereunto annexed and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this fourteenth day of November, in the year of our Lord one thousand eight hundred and fifty-four, and of the Independence of the United States of America the seventy-ninth.

[SEAL.] ROBERT McCLELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
C. MASON,
Commissioner of Patents.

442 The schedule referred to in these letters patent and making part of the same.

To all to whom these presents shall come:

Be it known that I, C. B. Normand, of Havre, France, have invented certain improvements in saw-mills for curved and bevel sawing, but which may also be used for rectilinear sawing, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of the mechanism for controlling and directing the timber to the saw or saws.

Figure 2, a longitudinal vertical section;

Figure 3, a cross-vertical section thereof, and

Figure 4 is a plan of a modification of my said invention, and Figures 5, 6, and 7 vertical sections thereof, taken at the lines A *a*, B *b*, & C *c* of Fig. 4.

The same letters will be used to indicate like parts whenever they appear in Figs. 1, 2, & 3, and the same course will be pursued in indicating the several parts in Figs. 4, 5, 6, & 7.

443 My invention is specially designed for sawing ship or other timbers in the various curves and bevels required by a mechanism whose mode of operation or principle is such, however varied in the mere mode of construction, that the motion of the log is directed to the saw or saws in the lines of the required cuts without the necessity of changing the plane of the saw or saws and so that at any time the attendant can, whether before or during the operation of sawing, shift suddenly or gradually the directing function of the mechanism and thus produce surfaces of any extent or variety of curvatures or bevels, and whether regular or variable from end to end of the log.

Many machines have been invented and constructed for this purpose, but all more or less defective, as, for instance, the log has been secured on a carriage turning on a centre on a line at right angles to the plane of the saw. This presents and moves the log to the saw in a proper manner for efficient cutting, but as the carriage turns on a fixed centre this is only adapted to sawing arcs of

444 perfect circles, although by shifting the axis nearer to or further from the plane of the saw before starting circles of greater or less radius can be cut. The capacity of this method is too limited. Again, the log has been mounted on a compound carriage, the first or base carriage moving longitudinally to carry the log towards the saw and the second mounted on the first and moving at right angles to it so as to generate the form of the line of cut by the combination of these two motions at right angles to each other, the curvature being determined either by a guide of the required form of the side or by the attendant, but this is objectionable for the reasons that the saw or saws must be hung on pivots or journals in the saw gate so as to be turned to follow the varying direction of the curvature. If the saw be strained to the required tension for efficiency in cutting it will be very difficult to turn, and if turned by hand it is difficult to guide, and if turned by mechanism connected with a guide at the side the complexity and liability to de-

445 rangement becomes seriously objectionable, besides the use of a compound carriage for generating the required curvature presents serious objections on account of complexity and friction of the moving parts, which cannot be controlled by an attendant, and therefore necessitates the use of mechanical guides that add greatly to the cost of the machine, as a different guide is required for every different curve required, and besides on this plan it becomes very difficult to give efficient support to the log, where required, in close proximity to the saw.

With a view to remedy some of the evils of the method above indicated the log has been placed on a single carriage having a longitudinal motion, in the manner of the common saw-mill, and the

curvature or curvatures have been obtained by hanging the saw or saws on pivots or journals in a second saw gate, so mounted in the main saw gate as to be free to slide laterally therein, so that either by hand or by mechanical guides at the sides the required curves could be generated; but this in reality presents all the objections of the previous plan, although they may be less prominent.

446 All these relate to longitudinal curvature; but for bevel sawing the mode generally adopted heretofore is to hang the log at both ends to chucks on turning mandrels, mounted on the ends of the carriage, so as to determine and give the required bevel by turning the chucks with the log. The objections to this plan are difficulty of so holding and supporting heavy logs, of so constructing the chucks as to enable the saws to cut through the end of the logs, and specially of giving to both ends of the saw blades the same angular and lateral motion when properly strained for rapid and exact operation.

By my invention I avoid all the serious difficulties of the several methods heretofore practiced, and I am enabled thereby so to direct the log that the plane of the saw, without shifting or turning it, is always tangent to the curve, whatever may be its direction or radius and however that may be changed in the progress of the log, and this I effect by directing the motion of the log toward the saw by supporting it on rollers whose axes always converge or nearly

447 converge to a common point on a line at right angles to the face of the saw, which point becomes the centre of motion of the log, and so arranged that the said rollers can be shifted at any time, either before or during the sawing operation, so as to shift the conveyance nearer to or further from the saw or reverse it from side to side, and thus vary the radius or reverse the direction of the curvature. It is this mode of operation for directing the log to the saw or saws which constitutes the first part of my invention.

And the second part of my invention, which relates to the method of directing and varying the bevel of the surfaces to be cut by the saw or saws, consists in mounting the rollers which support the log in a swinging or vibrating frame or frames, so that the said rollers can be placed at any desired angle with the plane of motion of the saw and there retained or gradually shifted in either direction during the sawing operation, whereby the log can be sawed to any fixed and determined bevel, or to any bevel, varying in any desired degree from end to end.

448 Having thus pointed out the modes of operation heretofore practiced and what I deem to be their defects, & also pointed out the principle or mode of operation which distinguishes my invention from all other things before known, I will now describe minutely the mode of construction which I deem the best, together with one modification thereof.

In figures 1, 2, & 3 of the accompanying drawings *a a* represent the saws, which may be mounted, strained, and operated in any known or suitable mode for straight sawing, and *b* represents the floor or other suitable platform, on which are erected three standards, *c c c*, with suitable semi-cylindrical boxes at top to receive the

journals *d d d* near the upper ends of crank arms *e e e e*, on the ends of two longitudinal shafts, *f f*, which I prefer to make tubular to avoid weight and to obtain the required stiffness. There is one such crank arm at each end of each of these shafts, but one of these crank arms, instead of having a journal, like the other three, is provided with a stem, *g*, having a socket to receive the end of the jour-
449 nal *d* of the next adjoining crank arm. This mode of suspending the shafts *f f* affords sufficient space for the free working of the saws.

Four frames, *h h' h² h³*, are connected with these two shafts *f f*, one near each end, by means of spindles *i i i i* passing through the shafts and perpendicular to the horizontal axis of the journals *d' d d*, upon which spindles the several frames *h* will be free to vibrate; and the four frames carry each a sustaining roller, marked *j j' j² j³*, their journals being fitted to turn freely in suitable boxes in the upper part of the frames *h h' h² h³* and so suited that the upper surfaces of the four rollers will be in one and the same plane, and these four frames are so connected together that when either of them is turned on its spindle they will all turn together, and so that the axis of all four will converge on the right or left towards one common point in a vertical transverse plane, X X, perpendicular to the plane of the saw. This point becomes then the centre of motion of the piece of timber borne on the rollers and operated upon.
450 As these frames are turned on their spindles the centre to which the axis of all the rollers converge will approach to or recede from the plane of the saw, thus increasing or reducing the radius of motion.

The manner in which these frames are connected for this purpose is thus: A connecting rod, *k*, is jointed at one end to the frame *h* on one side of its spindle, and at the other end with the other frame, *h³*, on the other side of its spindle. The connections of this rod with the two extreme frames being on opposite sides of their spindles and at equal distances therefrom, it follows that when one end of one is moved in one direction the corresponding end of the other will move over an equal arc in the opposite direction, and *vice versa*.

The frame *h* is connected with the frame *h'* by another connecting rod, *l*, one end of which is jointed by a pin with the frame *h'* on one side of its spindle, and the other end is provided with a straight cogged rack, *m*, and a yoke, *n*. The rack teeth engage the
451 cogs of a sector rack or cog-wheel, *o*, attached to the frame *h*, with its sector of cogs much nearer the spindle of the frame than the length of its radius, so that when the frame is vibrated either way from a position at right angles with the line of the shaft *f* it shall act on the connecting rod in the manner of a progressive lever to preserve between the several frames *h h' h² h³*, during their angular motions, the necessary and variable relations required by the conveyance of the rollers. The yoke *n* embraces the sector cog-wheel and pin *p* to keep the teeth of the rack and of the sector always in gear. The frame *h³* is connected with the frame *h²* precisely in the same manner as the fram- *h* is connected with the frame *h'*.

From this it will be seen that by simply turning the frame n in either direction all the frames will be turned simultaneously with the line of the axis of the rollers, all converging to one common but movable centre.

A log, q, or other piece of timber, previously slabbed or sided,
452 being placed on the rollers and moved or fed towards the cutting edge of the saw, it will be seen that the direction of the motion of this log towards the cutting edge will depend entirely upon the position of the rollers. If they are parallel with each other the log will move in a straight line. If the frames be turned, the axis of the four converging to a common centre on one side of the saw, then the log will move in a circle of which a line from it to that common centre will be the radius, whatever that distance may be, and *vice versa* if the frames be turned in the opposite direction. The operative therefore, by tracing a line on the upper surface of the log or timber and taking the handle r of the bow frame on the frame h^3 in his hand, can direct the log or timber in any direction desired and vary it at pleasure, either before or during the working of the saw, and thus cut the log or timber in any direction, whether straight or curved, and with the curve in any desired direction or of any desired radius.

The two rollers of the frames h' h^2 are provided with a
453 ratchet wheel, s s, operated by hand or pall, as in the usual mode of feeding; but any suitable mode of giving the feed motion may be adopted, as this makes no part of my invention.

The two inner crank arms of the shafts f f have attached to them at right angles two other arms, t t, that are connected at their outer ends to journals or wrists projecting from a collar, u, at the upper end of a screw shaft, v, which is tapped in a nut, w, swivelled to the floor or platform of the mill.

The screw shaft is provided with a crank handle, x, so that by turning the said screw in either direction the shafts f f will be made to swing in either direction on the journals of their crank arms, carrying with them the frames h h' h^2 h^3 with their rollers, and thus place the log or timber resting on them at any desired angle with the plane of motion of the saw or saws, to give any desired angle or bevel to the surface being cut, the angle being the same throughout
the length and set beforehand or gradually changed to the
454 required extent during the sawing operation, either by hand or by a separate variable feed motion, which needs no description.

I have thus described that mode of construction for both parts of my invention which I have tried with success and which I deem the best, but I do not wish to be understood as limiting myself to such mode of construction, as it may be greatly varied by the mere substitution of mechanical equivilents, thus obtaining the same ends by analogous means; nor do I wish to be understood as limiting myself to the use of both parts of my invention in connection, as they can be used independently of each other to some advantage, although the capacity of the mechanism will be thereby limited, as, for instance, I have contemplated the application of the principle of my

invention in a simple form for the purpose of curvilinear sawing on logs which have not been slabbed or sided; but the mode of operation will be found to be the same in this mode of applicatien as represented at Figs. 4, 5, 6, & 7 of the accompanying drawings,
455 where the log *a'*, not previously slabbed or sided, rests on two rollers, *b' b'*, mounted in standards *c' c'*, and one in front and the other back of the saws *d'*. The usual feed motion can be applied to a ratchet wheel, *e'*, on the arbor of either roller and in the usual and well-known mode.

The other end of the log is properly secured by chains, wedges, and dogs to the top of a bolster, *f'*, swivelled by a king bolt in the usual manner to a platform, *g'*, mounted on a pair of wheels, *k' k'*, which run freely on the floor or platform of the mill. The axletree is provided with a hand lever, *l'*, by which the direction of the axes of the two wheels can be shifted at pleasure.

456 It will be seen that when the axis is placed in a line parallel to the axes of the roller *b'* the log will travel in a straight line towards the saw and will be cut along a straight line, but the moment the axis is inclined, so that it will intersect at some point the prolonged axis of the roller bearing the log near the saws on either side of it and at any desired distance therefrom, that moment the log will travel in arcs of circles, of which the said point of intersection will be the centre.

In this way the mode of operation of the first part of my invention can be readily applied to the sawing of logs in any desired curve without previously siding or slabbing.

It will be obvious to the mechanician that (from the foregoing) the mode of operation which I have pointed out as constituting my invention for directing the log or timber for sawing curves or bevels may be applied under a great variety of merely formal variations in the mechanical devices or instruments by the substitution
457 of mechanical equivalents, and therefore I wish to be distinctly understood that I do not limit myself to the mere mechanical construction, as specified, so long as the same ends are obtained by analogous devices.

What I claim as my invention and desire to secure by letters patent is the mode of operation, substantially as specified, for directing the log or timber to the saw or saws in curvilinear sawing by means of rollers or their equivalents, whose axes can be shifted at pleasure, as herein specified, to determine and vary the line of motion of the log or timber to the saw or saws without the necessity of turning or moving the saw or saws laterally, substantially as described.

And I also claim mounting the rollers which support the log or timber to be sawed in a swing or vibrating frame or the equivalent therefor, substantially as specified, so that the plane tangent to the upper edges of the rollers can be placed at any desired angle with the plane of motion of the saw, and there retained or
458 gradually shifted in either direction during the sawing operation, whereby the log or timber can be sawed to any fixed

461

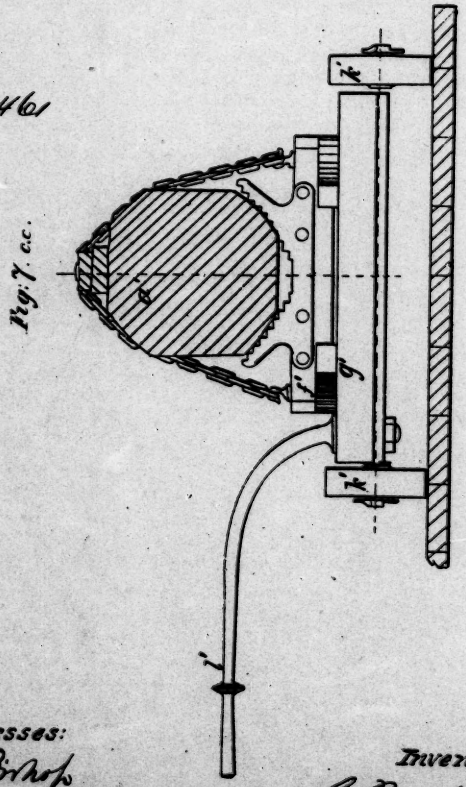
Sheet 3, 3 Sheets.

C. B. Normand.

Saw Mill.

No. 11,940. Patented Nov. 14, 1854.

No. 137.
Brown
U. S.
p. 461



Witnesses:
Wm. H. Bishop
Andrew Delaney

Inventor:
C. B. Normand

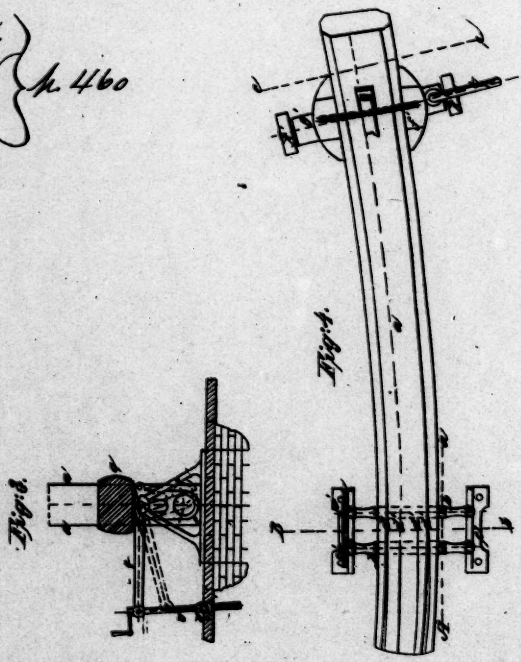
3 Sheets. Sheet 2.

C. B. Normand,

Scroll Sawing Machine.

No. 11,946. Patented Nov. 14, 1854.

No. 137.
Brown
&
D.C.
} p. 460



Witnesses:

Inventor:

459

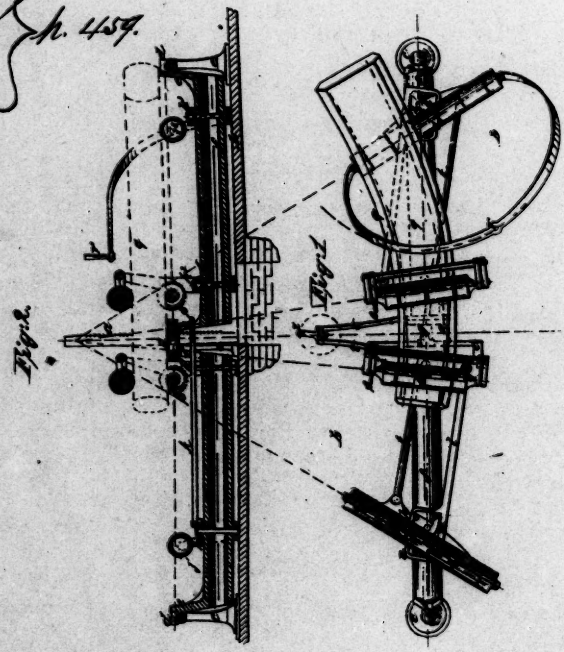
3 Sheets. Sheet 1.

C. B. Normand,

Scroll Sawing Machine.

No 11,946. Patented Nov. 14, 1854.

No. 137. Brown p. 459. do.



Witnesses:

Inventor.

C. B. Normand

and determine- bevel or to any bevel varying in any desired degree, as set forth.

C. B. NORMAND.

Witnesses:
WM. H. BISHOP.
ANDREW DE LACY.

(Here follow diagrams marked pp. 459, 460, & 461.)

462 DEFENDANT'S EXHIBIT D. C. No. 13. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2-175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Pearson Crosby November 3, 1841, No. 2321, for improvement in the saw-mill for resawing boards and other timber.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

463 No. 2321.

United States of America to all to whom these letters patent shall come:

Whereas Pearson Crosby, — Fredonia, New York, has alleged that he has invented a new and useful improvement in the saw-mill for resawing boards and other timber, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an ex-

clusive property in the said improvement and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Pearson Crosby, his heirs, administrators, or assigns, for the term
464 of fourteen years from the third day of November, one thousand eight hundred and forty-one, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Pearson Crosby in the schedule hereunto annexed and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this third day of November, in the year of our Lord one thousand eight hundred and forty-one, and of the Independence of the United States of America the sixty-sixth.

[SEAL.] FLETCHER WEBSTER,
Acting Secretary of State.

Countersigned and sealed with the seal of the Patent Office.
HENRY L. ELLSWORTH,
Commissioner of Patents.

465 The schedule referred to in these letters patent and making part of same:

To all whom it may concern:

Be it known that I, Pearson Crosby, of Fredonia, Chautauqua county and State of New York, have invented a new and useful improvement in the machine for resawing boards & other timber, which is described as follows, reference being had to the annexed drawings, which make a part of this specification.

The principal object of this machine is to resaw boards and plank so as to divide them into parts much smaller than has been done by any mill heretofore constructed, as a board of ¼ of an inch thick may be split into two equal parts. The peculiarity of this mill consists, first, in a system of vertical rollers and accompanying apparatus by which the boards or planks are held & carried to feed the saw; second, the method of regulating the feed & the thickness of the cut; third, the method of straining the saw; fourth, the method of changing the position of the rollers so as to cut diagonally for
466 clapboarding, &c. As the frame possesses no novelty, it is unnecessary to make a particular description of it. The saw frame is much lighter and narrower than the ordinary one. I strain the saw by the following contrivance: Instead of the common stirrup I use bolts, as at Fig. 6, which pass through the upper and lower girts of the gate & are secured and strained by nuts, one of which is seen at *a*, Fig. 1. One end of the bolt is fastened and passes through a horizontal beam, *b*, Fig. 6, which rests on a pin passing through said bolt, as at *c*. The beam is susceptible of a vibration as well as a lateral movement. At each end of the beam is another beam in form

of a vee (V), as *d d*, resting on pins *e e*. These beams also may vibrate and move laterally by means of oblong holes, as at *a*, Fig. 7. The ends of beam *b* are open or split so as to recive the end *a*, Fig. 7. The lower ends of the beams *d d* are also open or split so as to receive the saw, of which *e* is a section. The holes in the saw and in the beams *d d* are to receive pins or rivets. By means of the oblong holes, as *a*, Fig. 7, the saw may have an equal
467 strain, & by a lateral shift of the beam *b* on the pin *e* the strain may be thrown on the front of the saw and give the saw more or less rake. By means of a bolt, as *a*, Fig. 6, passing through the centre of each girt, not only the saw is kept in place, but the gate is kept in proper trim or balance and not allowed to twist or wrap; and this construction requires much less weight of metal or materials. In addition to the straining apparatus already described for stiffening the saw, I use the following apparatus (similar to that described in my patent of June 7, 1838.) In order to be able to use a very thin saw I make use of the following contrivance for keeping the saw true & preventing its running aside: between the two centre posts of the frame and at a suitable height is placed the stock 1 1, Fig. 1, containing rollers, as 2 2, between which the saw moves; by regulating screws these are kept in place. 3 is a grooved roller for the purpose of keeping the board from rising. Opposite to this last mentioned & back of the saw is another
468 like 3, out of view in this Fig., but as at 3, Fig. 1^{x}; also to prevent the board from bearing against the back of the stock 4 4 is a piece extending up from the stock, passing through a mortise or opening in the frame piece 5 5, with the rack 6. In the frame piece 5 5 is a pinion below 6 by which the rack is raised or lowered to regulate the height of the stock or rollers. On the right, in the piece 4 4, is a series of holes, as 4^{x} 4^{x}, &c., to receive a pin, as at the lower 4^{x}, to retain or hold up the piece 4. Instead of a series of holes and a pin, a ratchet and hand may be used for this purpose; the ratchet might be on the shaft of the pinion which raises the rack. The cross-part 7 7 is an horizontal extension of 4 4, sliding against the uprights, against which the gate slides, to keep the piece 4 4 & stocks and rollers steady. There is also another stationary stock with rollers below the platform *b b* for the same purpose of regulating or steadying the saw. These rollers are out of view in this Fig. At 2 2, Fig. 1^{xx}, are the rollers under the platform *b b*, being a side view of a section of the
469 platform & saw with the bearings 3 3 of one of the set of rollers on one side of the saw. To hold the board or plank to be sawn I use the following apparatus: On the platform *b b*, Fig. 1, is a cross-slide platform or carriage, *c c*, which is moved laterally on the first platform by means of a set screw, as at *d*, Fig. 1. On this platform (*c c*) is arranged the 6 vertical rollers *e e*, Fig. 1. *e e*, Fig. 2, also shows an end view of the same. *f f*, Fig. 1, & *f f*, Fig. 2, is a metal frame to support the rollers, which in these Figs. are represented as being on one shaft, having the projecting bearings *g g g*, Fig. 2, and the lower bearings are in the platform *c c*, Figs. 1 & 2. There is another set of rollers, as *i i i*, Fig. 1, and *i i i*, Fig.

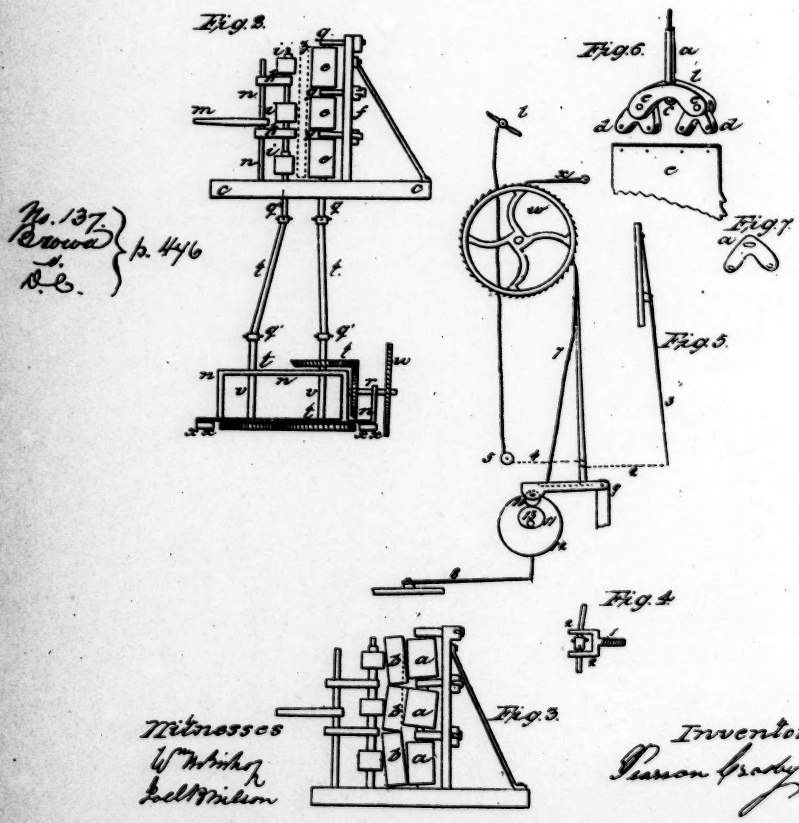
2 (which is an end view). These last also consist of 2 sets, corresponding with the first set, *e e*. By the horizontal pieces *k k* the sets are connected, and they form bearings & supports for them. Through the pieces *k k* passes a shaft, *l*, passing through the lever *m*, which *m* has for its fulcrum the shaft *n n*. This shaft *n n* is supported at the top by the frame *o o*. By an arrangement
470 of holes or bearings *p p* the position of the shaft *n n* may be altered to suit different sizes of timber. Like letters in Figs. 1 & 2 refer to the same pieces. The shaft *l* is placed in the pieces or levers *k k* so as to come sufficiently between the two sets of rollers *i i* to have a partial effect of the lever *m* on the near rollers or those which introduce the boards, the lower part of the shaft of the far rollers passing down through a slot, *p*, in the slide *c c*, as q^x, Fig. 2. The board, an end view of which is represented by the dots *z z*, being placed between the rollers, then, by means of the lever *m*, which posses- suitable elasticity, & the winch, drum, cood & ratchet, & hand, as at *s s*, Fig. 1, the rollers connected with the lever press the board against the rollers on the right. The shaft of the far rollers *e e* passes through the platform *c c*, as seen at the right hand, *q*, Fig. 2. The lateral movement of the carriage *c c*, by means of the set screw *d*, is for the purpose of regulating the thickness to be cut, as the rollers in the frame *f f* are by this means thrown
471 nearer to or farther from a line with the saw. The rollers on each side of the board turn in towards each other to advance the board to the saw, and the rollers on each side nearest the saw have the shafts extended down to the driving wheels, Fig. 2. *t t t t t t*, Fig. 1, & *t t t*, &c., Fig. 2, refer to the same. *z* in both Figs. is the same. *u u u*, Fig. 1, is a frame-work (which is not fully seen in this figure) which supports & holds the parallel parts of the shafts, as *v v*, Fig. 2, which are stationary relatively to each other. *u u u*, Fig. 2, is an end view of the frame *u u*, Fig. 1, supported by the timbers u^x u^x u^x, Fig. 1. v^x v^x, Fig. 2, are the same as one piece, u^x, Fig. 1, there being one like it at the right under the piece *u u*, Fig. 1. As the right and left rollers, to accommodate different thicknesses of stuff, require either to approach to or recede from each other, it is requisite to use universal joints in the axles, as at q^x *q* & q' *q'* Fig. 2. W, Fig. 2, is the feeding ratchet on the same shaft with the mitre wheel *r*. W, Fig. 5, is a side view of the feeding ratchet with the pall *x*. *y* is the
472 feeding rod which moves the ratchet. The lower end of this feeding rod rests on the horizontal piece or lever 1. This lever has a groove, represented by the dots, in which the tongued base of the feeding rod rests. 2 is a cord attached to the rod and also to the end of a spring, 3, which may be wood or metal, of suitable length to give the requisite motion. 4 is a cord attached to the feeding rod or hand, & passes round a pulley, 5, and extends up to a fastening, 6, convenient to the tender. 6^x, Fig. 1, is the fastening. 7, Fig. 5, is a cord attached to the feeding hand near the top, & extends downwards to a horizontal spring, *b*, & the position and arrangement represented by 2, 3, 4, 5, & 6 are to place & retain the hand *y* on any part of the lever 1 for the required feed. At 9 is the fulcrum of the lever on a portion of the frame of the mill. 10

2 Sheets-Sheet 2.

P. Crosby,

Resawing Machine.

No. 2,321. Patented Nov. 3, 1841.



Witnesses
Wm. McBishop
Joel B. Wilson

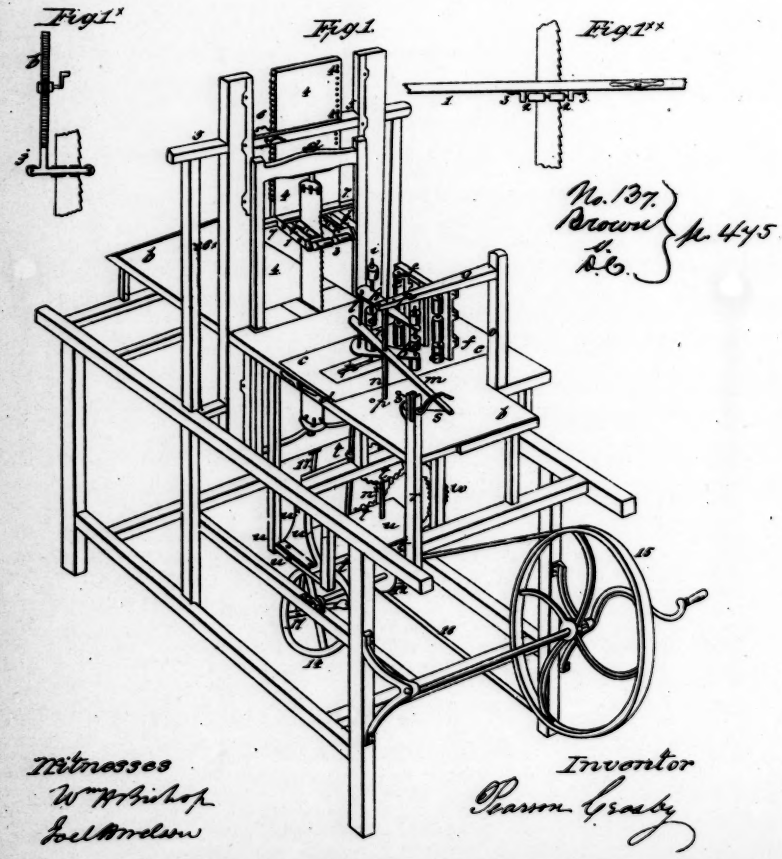
Inventor
Pearson Crosby

2 Sheets-Sheet 1.

P. Crosby,

Resawing Machine.

No. 2,321. Patented Nov. 3, 1841.



Witnesses
Wm H Bishop
Joel Anderson

Inventor
Pearson Crosby

is a roller in the end of beam 1, on which plays the eccentric driver 11. The circle 12 is the driving pulley 12 of Fig. 1. 13, Fig. 5, is the shaft of cam 11, pulley 12, & fly 14, driven by wheel 15 and belt 16 of Fig 1, 17. 17, Fig. 1, is the connecting rod between the crank pin on the fly-wheel & the gate.

473 To saw diagonally, the feeding rollers at the right, as *a a a*, Fig. 3, are put in the position represented in this Fig., by means of universal joints between the rollers and by means of set screws, as at 1, Fig. 4, with branched bearings 2 2, the joints and bearings in the other figures being covered. *b b b*, Fig. 3, are pieces of stuff to be sawn, confined by the feeding rollers. The dotted lines represent the line of the cut of the saw. Instead of 3 rollers, one above the other, more or less may be introduced as required.

What I claim as my invention and desire to secure by letters patent is—

First. The combination & arrangement of the apparatus for holding the timber, as before described and represented in Figs. 1 & 2, consisting of the rollers *e e e* and *i i* and levers *k k* & *m m*.

Second. The combination and arrangement of the parts for feeding, as represented at Fig. 5 and before described, consisting of the parts 1 2 3 4 5 6 7 8 9 10 11 12 W X Y.

Third. The construction and arrangement of the apparatus for straining the saw, as before described & represented at Fig. 6, consisting of the pieces *a*, *b*, *d*, *d*, & *a*, Fig. 7.

474 Fourth. The method of changing the position of the feeding or holding rollers by means of the joints, as represented at Fig. 4 and before described, the whole operating as and for the purpose set forth in the specification.

PEARSON CROSBY.

Witnesses:
JOHN W. POST.
DAVID H. KEAVINS.

(Here follow diagrams marked pp. 475 & 476.)

477 DEFENDANT'S EXHIBIT D. C. No. 14. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records

of this office of the letters patent granted Henry Millengar April 5th, 1864, No. 42212, for improvement in manufacture of siding.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

478 No. 42212.

The United States of America to all to whom these letters patent shall come:

Whereas Henry Millengar, of Pittsburgh, Pennsylvania, has alleged that he has invented a new and useful improvement in manufacture of siding, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement and praying that a patent may be granted for that purpose-.

These are, therefore, to grant, according to law, to the said Henry Millengar, his heirs, administrators, or assigns, for the term of seventeen years from the fifth day of April, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of
479 making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Henry Millengar in the schedule hereunto annexed and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this fifth day of April, in the year of our Lord one thousand eight hundred and sixty-four, and of the Independence of the United States of America the eighty-eighth.

[SEAL.] J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
JOHN L. HAYES,
Act'g Commissioner of Patents.

480 The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, Henry Millingar, of Pittsburgh, in the county

of Allegheny and State of Pennsylvania, have invented a new and useful improvement in the manufacture of siding; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of a series of strips of siding made according to my invention and nailed to a stud, *x x*. Figure 2 indicates the plane of section; figure 2, an outer view of the same; figure 3, a detached end view of a board or plank grooved and ready for slitting.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and useful improvement in the manufacture of siding for frame buildings. The object of the invention is to economize in the manufacture of the same and
481 at the same time produce equally as good an article as that manufactured on the old plan.

The invention consists in grooving boards or planks of a suitable thickness at each side and then slitting the boards or planks obliquely, substantially as hereinafter described, whereby a rebate is formed at the lower edge of each piece of siding to lap over the upper edge of the piece immediately below it, and the whole width of the inner surfaces of the siding made to abut snugly against the studs.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, figure 3, represents an end view of a board or plank of suitable thickness—say an inch and an eighth. This board or plank is grooved at each side in an ordinary grooving machine, both sides being grooved simultaneously as the board or plank is run through the machine. The grooves, which are designated by *a a*, are
482 of rectangular form, and are cut into the board or plank at the centre of its width.

After the board or plank is thus grooved it is slitted obliquely, as shown in figure 3, the kerf, which is indicated by the dotted lines, extending from the inner part of one groove at one side of it to the inner part and opposite side of the other groove. The board or plank thus slitted forms two pieces of siding with a rebate at one edge which is of sufficient width to receive, when nailed to the studs of a building, the upper edge of the piece of siding immediately below it, as shown clearly in Fig. 1, in which B represents a stud and C the pieces of siding nailed to it.

It will be seen from the above description that the width of the grooves *a* should be fully equal to the width of the lips *b* at each side of it in order that the siding may be lapped, as described. By this arrangement the inner surfaces of the siding is made to abut snugly against the studs, and each pi-ce of siding is nailed to the studs just above the lap, as shown in figure 1. This siding may be manufactured at a less cost than the ordinary siding.

483 Having thus described my invention, what I claim as new and desire to secure by letters patent is—

The method herein described of producing rebated siding boards, which consists in first grooving both edges of the stuff and then slitting it obliquely between the grooves, all as set forth.

HENRY MILLINGAR.

Witnesses:
WM. BECK.
C. B. McVAY.

(Here follows diagram marked p. 484.)

485 DEFENDANT'S EXHIBIT D. C. No. 15. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Hinchman, Hinchman & Hinchman June 30, 1863, No. 39099, for table for reciprocating saws.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

486 No. 39099.

United States of America to all to whom these letters patent shall come:

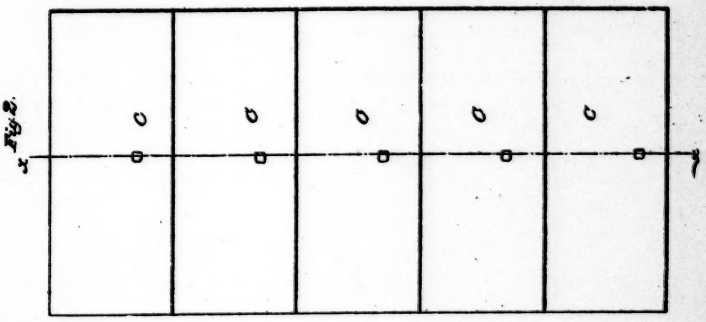
Whereas Chas. C. Hinchman, of Clarksboro', New Jersey, has alleged that he has invented a new and useful table for reciprocating saws (he having assigned his right, title, and interest in said invention to self, J. M. Hinchman, and J. R. Hinchman, of same place), which he states has not been known or used before his application; has made affirmation that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or

H. Millingar.

Making Siding for Frame Houses.

No. 42,212. Patented Apr. 5, 1864.

Fig. 2.



No. 137.
Brown
v.
D.C.
} p. 484

Fig. 3.

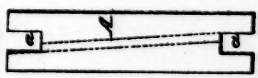
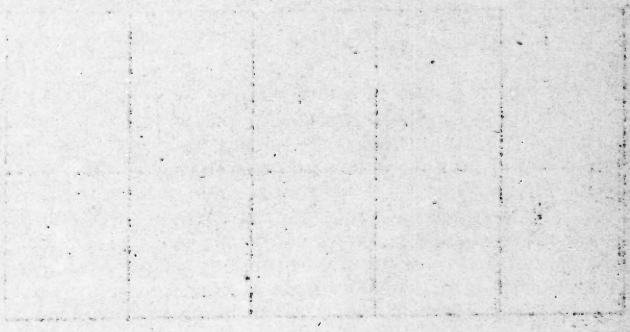


Fig. 1.

Witnesses.
J. W. Coombs
G. W. Reed

Inventor.
Henry Millingar.
per Munn & Co.
Attys.



used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said invention and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Hinchman, Hinchman & Hinchman, their heirs, administrators,
487 or assigns, for the term of seventeen years from the thirtieth day of June, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said invention, a description whereof is given in the words of the said Chas. C. Hinchman in the schedule hereunto annexed and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this thirtieth day of June, in the year of our Lord one thousand eight hundred and sixty-three, and of the Independence of the United States of America the eighty-seventh.

[SEAL.] J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
D. P. HOLLOWAY,
Commissioner of Patents.

488 The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, C. C. Hinchman, of Clarksboro', Gloucester county, New Jersey, have invented an adjustable table for reciprocating saws; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention consists of a certain adjustable table for reciprocating saws, fully described hereafter, whereby the proper bevel may be imparted to the ribs of vessels and other objects with accuracy and facility.

In order to enable others skilled in this class of machinery to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms a part of this specification, Fig. 1 is an end view of my improved adjustable table for reciprocating saws; Fig. 2 a rear view of Fig. 1, and Fig. 3 a vertical section of part of the table drawn to an enlarged scale.

489 Similar letters refer to similar parts throughout the several views.

A represents the top and B the base of the table, and to this base

are secured plates *a a*, carrying small rollers *b*, which are grooved on the edge for the reception of the segmental plates B, two of which are secured to the top A of the table, one near each end of the same, in the manner best observed on reference to Fig. 3.

Two screw stems, *e e*, project from and in the present instance form a part of each segmental plate, each stem passing through a staple, E, secured to the under side of the top A of the table, and the stem being furnished above and below the staple with a suitable nut.

One of the segmental plates D has teeth cut in its upper edge, and into these teeth gears a pinion, F, on a shaft, G, which turns in suitable bearings secured to the base B of the table.

On the same shaft G is a worm wheel, H, into which gears a worm, I, secured to the vertical shaft J, which turns below in the base B and above in a suitable standard, *m*, secured to the
490 base, the upper end of the shaft being furnished with a suitable hand wheel, K.

To the rear of the base B is secured a standard, L, and to the upper end of the latter is secured a graduated quadrant, M. It will be seen that on turning the shaft J the pinion E, acting on the teeth of the segmental plate D, will cause the said plate to turn and the top A of the table to be tilted laterally, so as to assume any inclined position desired. It will also be seen that by adjusting the nuts of the screw stems *e* the top of the table may be more elevated at one end than the other.

A vertical reciprocating saw, which it has not been deemed necessary to illustrate other than by the dotted lines *w*, Fig. 1, is arranged to pass through a suitably bevelled opening in the top of the table.

Supposing that the rib of a vessel has to be bevelled at the edge by the action of the saw instead of by the tedious and laborious use of adzes and axes, the bevelled edge of the rib to be the same
491 throughout, the top of the table is in the first instance so adjusted in height in respect to the thickness of the rib that the point *x*, which represents the centre on which the table turns, shall be midway between the upper and under side of the rib to be operated on.

The bevel having been determined on and ascertained by a suitable instrument having graduations similar to those on the graduated quadrant N, the attendant at once adjusts the top of the table by turning the shaft J until a point on the rear edge of the table coincides with that mark on the quadrant M which corresponds with the mark on the instrument. The table is then in a position to receive the rib, the edge of which must necessarily be cut by the saw to the desired angle.

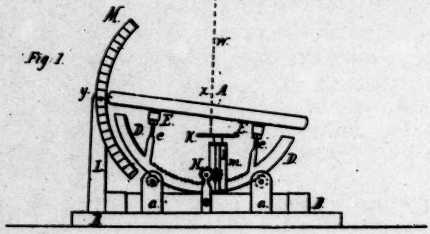
If a varying bevel has to be imparted to the edge of the rib, then, as the saw acts on the same, the shaft J must be gradually turned by the attendant, who watches the quadrant and notes the position assumed by a point on the table in respect to this quad-
492 rant, the latter determining the desired bevel and the variations of the same.

C. C. Hinchman.

Table for Reciprocat'g Saws.

No. 39099. Patented Jan. 30 1863.

Fig. 1.



No. 137.
Brown
v
D.C.
p. 494

Fig. 2.

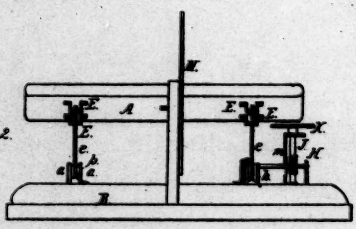
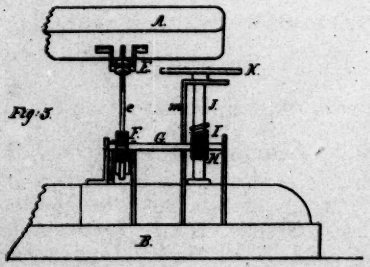


Fig. 3.



Witnesses:
[illegible]
Charles Howson.

Inventor:
Henry Howson
Atty. p. C. C. Hinchman

In sawing some ribs of peculiar shape it is necessary to elevate one end of the top A of the table more than the other, which can be readily done by adjusting the nuts of the screw stems *e e*.

I claim as my invention and desire to secure by letters patent—

Firstly. The table composed of the top A and base B, the former having segmental plates D adapted to rollers on the base, and the whole being arranged and operating and being combined with a reciprocating saw, substantially as specified.

Secondly. In combination with the top A of the table and its segmental plates D, I claim the pinion F, gearing in teeth formed on one of the said plates, the said pinion being operated by the gearing herein described or any equivalent to the same, for the purpose specified.

Thirdly. In combination with the adjustable top A of the
493 table, I claim the graduated quadrant M for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. C. HINCHMAN.

Witnesses:
HENRY HOWSON.
JOHN WHITE.

(Here follows diagram marked p. 494.)

495 DEFENDANT'S EXHIBIT D. C. No. 16. Filed with the Examiner this 13th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN.
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR,

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted the Bordentown Machine Company June 20, 1865, No. 48349, for improvement in saw-mills.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this eighteenth day of July, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

496 No. 48349.

United States of America to all to whom these letters patent shall come:

Whereas William A. Wright and James Molyneux, of Bordentown, New Jersey, have alleged that they have invented a new and useful improvement in saw-mills (they having assigned their right, title, and interest in said improvement to the Bordentown Machine Company), which they state has not been known or used before their application; have made oath that they are citizens of the United States; that they do verily believe that they are the original and first inventors or discoverers of the said improvement, and that the same hath not, to the best of their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said The Bordentown Machine Company, their successors or assigns,
497 for the term of seventeen years from the twentieth day of June, one thousand eight hundred and sixty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Wright and Molyneux in the schedule hereunto annexed and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this twentieth day of June, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States of America the eighty-ninth.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

498 The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that we, William A. Wright and James Molyneux, both of Bordentown, Burlington county, New Jersey, have invented an improved saw-mill; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention consists of a saw-mill constructed and operating in the peculiar manner described hereinafter, so as to cut ship-timbers

and other irregular forms, the mill being at the same time applicable to plain work.

In order to enable others skilled in this class of machinery to make and use our invention, we will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, figure 1 is a front view of our improved saw-mill; Fig. 2, a vertical section; Fig. 3, a sectional plan on the line 1 2; Fig. 4, a vertical section on the line 3 4, Fig. 2, of part of the machine drawn to an enlarged scale; and Fig. 5, an inverted plan view of part of Fig. 4.

Similar letters refer to similar parts throughout the several views.

The stationary frame of the machine consists of the uprights A and A′, connected together by the cross-beams B, C, and C′ and D, the whole being secured to a suitable foundation.

E is the movable frame of the machine, and is hung at the point *x*, Fig. 1, to the cross-beam C′ of the stationary frame. The upper edge of the movable frame E forms part of the circumference of a circle described from the point *x*, and on this upper edge are formed teeth *a*, into which gears the worm *b* on the shaft F, which turns in suitable bearings on the top of the stationary frame. Near each edge of the movable frame E are guides *e e*, in which the saw-frame G is arranged to reciprocate, motion being imparted to this frame through the medium of the pitman *f* and a crank-wheel, *h*, from the shaft H, which turns in the cross-beam C of the stationary frame.

A circular table, I, rests on the cross-beams C and C′, and is so confined thereto that it can turn freely, but have no verti-
499 cal movement, the surface of this table being as near as possible to the point *x*—that is, to the center of vibration of the frame E. Throughout a portion of the circumference of the table I are teeth into which gear the teeth of a pinion, J, on the vertical shaft *k*, which turns on the stationary frame. A roller, K, the surface of which projects slightly above the surface of the table I, turns in bearings on the under side of the said table, and to the journals of the roller is loosely hung a plate, L, the form of which will be best observed on reference to Fig. 5. The tendency of this plate L, acted on, as it is, by a spring or weight, is to bear upon the periphery of the crank-wheel *h*, Fig. 4.

To the top of the plate L are hung two pawls, *m m*, one engaging into a ratchet-wheel, *n*, at one end of the roller and the other into a similar wheel at the other end of the roller, to which a suitable friction is imparted by a spring, *y*.

The frame G is furnished with a suitable saw, *q*, which passes through the table I.

By turning the shaft F the frame E, with its saw-frame G, may be made to assume any angular position from that shown in Fig. 1 to a reverse position. This movement of the said frame E to any desired angle in no way interferes with the continued reciprocating motion of the saw-frame.

The movable frame may be so adjusted that the saw will cut a

piece of timber, R, to the bevel shown in Fig. 1, and if the timber has to be cut at an angle varying from one end to the other, which is frequently required in preparing ships' timbers, the angle of the saw-frame may be gradually changed by turning the shaft F as the operation of the saw continues. The timber to be cut rests on the table I and bears on the roller K, which may be corrugated. As the shaft H revolves a vibrating motion is imparted to the plate L by the crank-wheel *h*, and consequently an intermittent rotary motion is imparted through the pawls *m* and ratchet-wheels *n* to the roller which feeds the timber as it is being acted on by the saw.

In sawing curved pieces of timber, such as ships' ribs, it becomes necessary to turn the table I to such a position that the roller will induce the timber to move in the direction of the desired curve.

500 It will be seen that the plate L is of such a form and extent that, although moving with the table, it will continue to bear on the crank-wheel *h*, and will, therefore, continue to perform its duty of operating the roller after the table has been turned in one direction or the other and, in fact, during the turning of the table.

It will be evident that the simple saw-mill above described is especially adapted for cutting ship timbers, which are curved, and which have varying bevels; at the same time it is applicable to any plain work.

We wish it to be understood that we do not desire to claim, broadly, a saw-frame so constructed that it can be moved to different angles without interfering with the reciprocating motion of the saw; but

We claim as our invention and desire to secure by letters patent—

1. The frame E, its teeth *a*, the worm *b*, saw-frame G, pitman *f*, driving-shaft H, crank *h*, the whole being arranged for joint action and in respect to the stationary frame, as and for the purpose herein set forth.

2. The movable table I, with its roller K, in combination with the movable frames E and G.

3. The roller K, its ratchet-wheels, the plate L and pawls *m*, and wheel *h*, or its equivalent, the whole being arranged and operating substantially as and for the purpose herein set forth.

In testimony whereof we have signed our names to this specification in presence of two subscribing witnesses.

WM. A. WRIGHT.
JAS. MOLYNEUX.

Witnesses:
S. C. FORKER.
J. C. HOWSON.

(Here follows diagram marked p. 501.)

Wright & Molyneux,

Reciprocating Saw Mill.

No. 48,349. Patented June 20, 1865.

Fig 1.

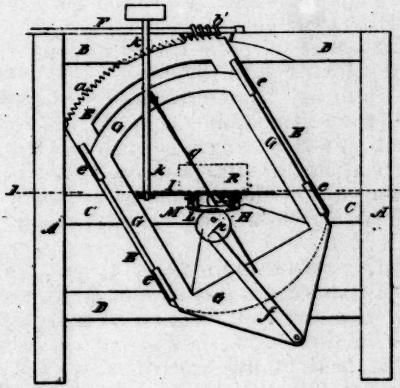
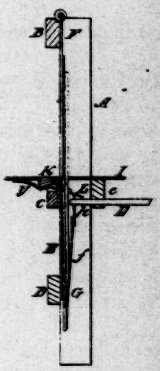


Fig 2.



No. 34, Brown } p. 551
Do.

Fig 3.

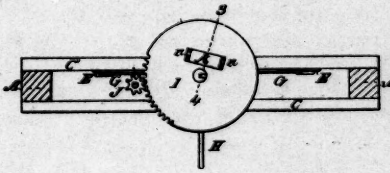


Fig 4.

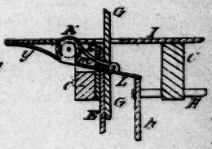


Fig 5.

Witnesses:
Alex C Fuller
Charles Howson

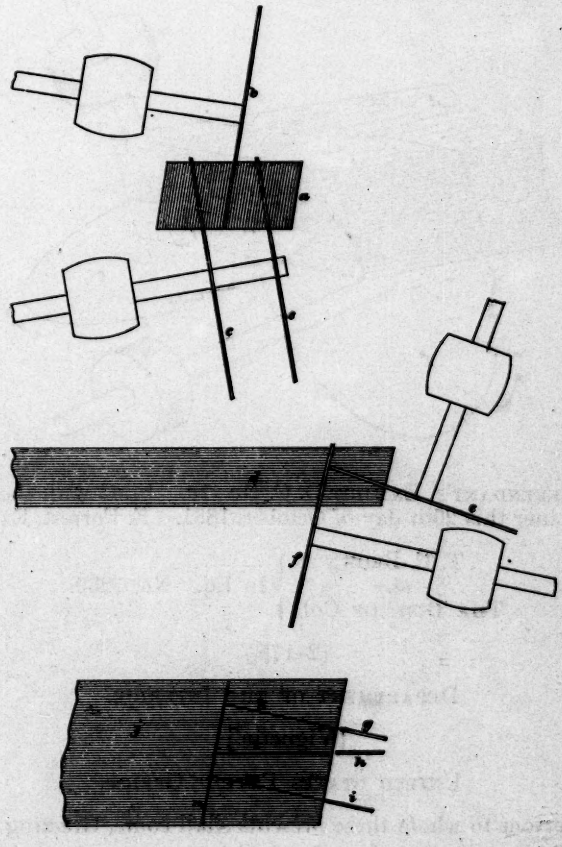
Inventor:
Henry Howson
Wright & Molyneux

502 EXHIBIT No. 17.

T. E. BROWN
vs.
THE DIST. OF COL. } In Equity. No. 7239.

Defendant's Exhibit D. C. No. 17, filed with the examiner this 14th day of October, 1881.

E. FORREST, *Examiner.*

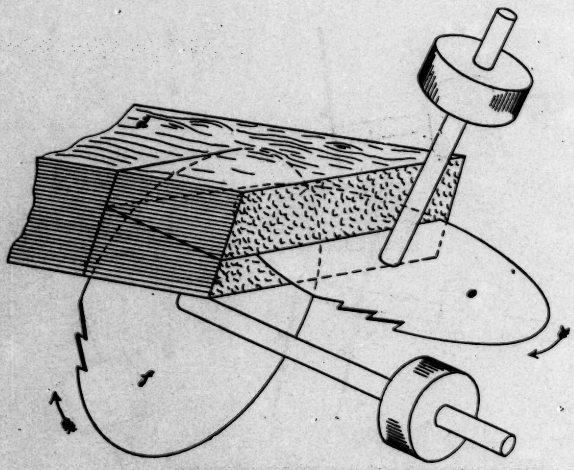


503 EXHIBIT 18.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

Defendant's Exhibit D. C. No. 18, filed with the examiner this 21 day of October, 1881.

E. FORREST, *Examiner.*



504 DEFENDANT'S EXHIBIT D. C. No. 19. Filed with the Examiner this 20th day of October, 1881. E. Forrest, Examiner.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

(2–175.)

DEPARTMENT OF THE INTERIOR.

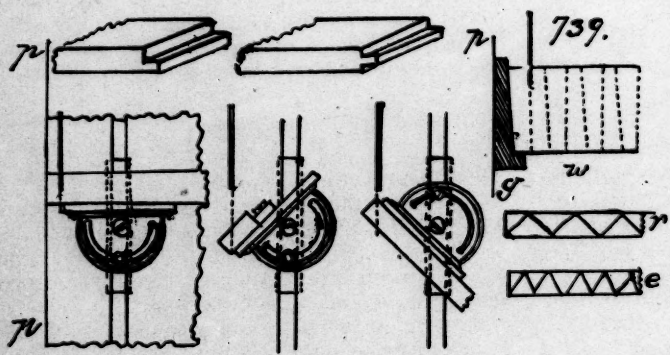
[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound volumes of the library of this office of pages 762, 763, and all of page 764, except last two lines, to be found in a volume entitled "Turning and Mechanical Manipulation," by Charles Holtzapffel, London, 1847.

Figs. 737. 738. 739.



740. 741. 742.

No. 137 Brouwe vs O.C. } p. 505 ½

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this twenty-seventh day of October, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

505 Turning and Mechanical Manipulation. By Charles Holtzapffel. London, 1847.

Extracts.

Pages 762, 763, & 764, excepting the last two lines on page 764.

Page 762. The guide for angles is represented in Fig. 740 in the position for cutting rectangular pieces from the end of a long bar, and the edge *p p* of the parallel guide then serves as a stop for the width of the blocks thus removed. By the similar employment of an oblique position, such as that shown in Fig. 741, rhomboidal pieces of any angle and magnitude may be as readily produced.

(Here follows diagram marked p. 505½.)

When the pieces are not cut from the end of a long rod, but are small, and only require to be reduced to any exact size, it is more convenient to affix the stop for width upon the fence or the semi-
circular protractor, as in Fig. 741, and in this manner small
506 pieces can be easily sawn into regular or irregular polygons of any particular angles and numbers of sides.

In cutting mitres, as for picture frames, the one piece would be cut by placing the semicircular fence in the position Fig. 741, but for the other piece of the mitre it is necessary to place the semicircle as in Fig. 742, so that the guide may precede the work that is to be sawn. Consequently, unless the slide will admit of being withdrawn from the groove and replaced the other end foremost, there should be two holes for the thumb screws and two indexes for the graduations.

Although the oblique fence may be placed at the smallest angle and even parallel with the saw, yet when the pieces are required to be thin and acute it is more generally convenient to prepare with the apparatus, Fig. 740, a wooden guide of the particular angle and of the form shown in Fig. 739, *p* being the
Page 763. parallel rule, *g* the guide or bevelled block, and *w* the work. A separate wooden block is necessarily required for every angle, and the parallel guide is still avail-
507 able in determining the general width or thickness of the work.

When the pieces are parallel in one direction and bevelled in the other they may be cut out without any waste beyond that arising from the passage of the saw. In such cases the work is prepared as a parallel piece equal in thickness to the parallel measure of the

objects, and the work is turned over between every cut so as to saw the pieces "heads and tails," or the wide end of the one from the narrow end of the other, as shown by the dotted lines in Fig. 739. This mode is employed for ivory knife handles and for the thin slips for covering the keys of piano-fortes, which are made thicker in front, where the principal wear occurs.

Triangles may be sawn out of parallel slips in a similar manner. Thus, by using guides at the angle of forty-five dedrees and turning the work over each time, right-angled triangles *r* are produced exactly of one size; with sixty degrees, equilateral triangles *e*, and so on for all others having two equal sides, a half triangle at each end being the only waste. In manufactories where large quanti-
508 ties of bevelled works are sawn it is usual to employ a wooden bevel guide for every different angle required, both from motives of economy and also to prevent the accidental misadjustment of variable guides, and sometimes the unchangeable guides are made in metal.

9. Sawing bevelled edges and oblique prisms or those in which the angular variations are in the vertical plane:

In cutting pieces with bevelled edges a supplementary bed of metal, the hinge of which is quite close upon the saw platform and against the saw, is occasionally employed. This may be set at all angles by a stay and binding screw; but the more simple and usual plan is to employ supplementary wooden beds planed to the definite angles required and through which beds the saw is allowed to cut a thin kerf, as usual.

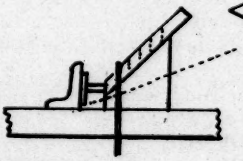
A pretty example of the use of inclined saw beds is seen in the so-called mosaic works, consisting of groups either of triangles, rhombuses, or of squares, cut in different colored woods and arranged so as to constitute various patterns, which it is pro-
509 posed to distinguish as triangular mosaics and square mosaics.

Mr. James Burrowes, of Tonbridge Wells, informs the
Page 764. author that nearly every sort of wood is used, both English and foreign, and also many sap woods, but principally holly and ebony for white and black, and barwood, barberry, beech, cam-wood, cherry, deal, fustic, green ebony, kingwood, laurel, laburnum, lilac, mulberry, nutmeg, orange, partridge, plum, purple, yew, and walnut for various colors. Mr. Burrowes adds that he was the first to introduce the work in Tonbridge ware turnery, boxes, and toys, although striped, feathered, and tessel-ated works somewhat of the same kind were used long prior in the bandings and stringings of ornamental cabinet work.

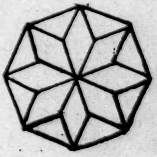
For the triangular mosaics beds of the angles of 45 and 22½ degrees are principally used, but others of 15, 30, 60, and 75 degrees are also occasionally employed. They require guides for parallelism, either to be applied to the inclined beds themselves or
510 to be added to the parallel rule, with the power of adjustment vertically as well as horizontally. Very thin saws are used, and they project but little through the beds.

(Here follows diagram marked p. 510½.)

Figs 743.



744.



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Brocon
vs
Q. C.
} p. 510 1/2

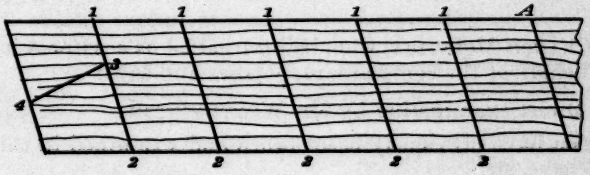
The wood is cut in pieces six or seven inches long, first into veneers of appropriate thickness, the formation of which into slender squares requires no explanation. Figure 743 shows that a bed of 45 degrees will at one cut for each piece convert the veneer into rhombuses figured separately at *a*, the acute angles of which measure 45, the obtuse 135 degrees each, and when the wood is turned over between each cut right-angled triangles *b* are produced with the same bed. When, as in the dotted line, Fig. 743, the bed measures 22½ degrees, and the work is also turned over, triangles are produced, such as *c*, and from which three figures, *a b c*, almost all the work is compounded.

511 EXHIBIT 20.

T. E. BROWN
vs.
THE DIST. OF COL. } In Eq. No. 7239.

Defendant's Exhibit 20, filed with the examiner this 27th day of October, 1881.

E. FORREST, *Examiner.*



512 In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
v.
THE DISTRICT OF COLUMBIA. } Equity No. 7239.

Index.

McIntire, W. C.----------
Adjournments ----------
Davis, H. S.----------
Exhibit "H. S. D. No. 1"----------
Speer, D'l E. ----------
Row, D'l N.----------

ALBERT HARPER, *Examiner.*

513 Filed Jun- 1, 1882. R. J. Meigs, clerk.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
v.
THE DISTRICT OF COLUMBIA. } Equity No. 7239.

Be it remembered that at an examination of witnesses begun and held on the 13th of March, A. D. 1882, and at other times by adjournments at the law offices of Messrs. Worthington & Heald, No. 501 F street northwest, Washington, D. C., and by consent or agreement of counsel, personally appeared before Albert Harper, an examiner in chancery of this court, the within-named witnesses, W. Cranch McIntire, Henry S. Davis, Daniel E. Speer, and Daniel N. Row, who, being produced in rebuttal for the complainant and being duly sworn to tell the truth, the whole truth, and nothing but the truth touching the matter at issue in said cause, deposes and says:

514 MONDAY, *March* 13, 1882—1 'c'k p. m.

Met pursuant to notice.

Present: Counsel for the respective parties; also the examiner, and—

W. CRANCH MCINTIRE, who, being recalled as a witness in rebuttal on behalf of the complainant, deposes and says:

Direct examination by Mr. WORTHINGTON:

Q. You have previously been sworn and examined in this case?

A. I have, sir.

Q. Have you examined and do you understand the English patent of Chambers filed in evidence by the defendant in this case and marked Exhibit D. C. No. 10?

A. I have examined it and I think I understand it.

Q. Will you please compare it with the patent of Tallmadge E. Brown, assignee of Turner Cowing, Complainant's Exhibit A in this case, and state to what extent, if any, you find the subject-matter of the Cowing patent contained in that of Chambers?

515 Compare the two patents and state to what extent the subject-matter of the two patents is substantially alike, if at all.

A. As I understand the two patents, the only point in which they are alike seems to be the wedge-shaped spaces between the blocks for the reception of filling material, but the configuration of the blocks, as well as the material from which they are made, differs essentially and in this particular: The Chambers patent describes a block composed of stone and having all of its sides tapering so that the space occupied by the filling between contiguous stones would necessarily surround each and all of the stones, while in the Cowing patent the blocks are composed of wood and have one or two of their sides tapering for the reception of the concrete filling. I find also in the English patent of Chambers that the blocks are

cemented at their bases by a cohesive cement for given distances in order to secure them at their bases, while no such provision is necessary in the Cowing patent, and the reason that no such provision is necessary in the Cowing patent is that, the blocks being com-
516 posed of wood capable of compression, the concrete material interposed between them is capable of being wedged and forced into the surface of the wood, forming, as it were, knuckles or locks. In further explanation of my understanding of the English patent I would say that I understand the blocks to be very irregular in form, although the drawing shows the diagram of a truncated pyramid. The inventor or patentee, however, states in his specification that the gist of his invention rests in the idea of having them smaller at the top than at the base. He distinctly states that the form represented in his diagram or drawing would be very expensive to produce, and hence impracticable.

Q. Please state whether, in your opinion, the block and pavement patented in the Cowing patent are or are not substantially contained in the Chambers patent.

A. From what I have already stated I am necessarily of the opinion that they are not contained in the Chambers patent.

Q. You have stated that the Cowing patent is for a block
517 having one or two of its sides inclined. The claim of that patent is for a block having "one or more of its sides inclined." Please explain this apparent discrepancy.

A. I have read the entire specification or description of the Cowing patent prior to the claim, and it relates particularly and essentially to a block having one or two only of its sides beveled, and the language of the claim being inconsistent with that description I assume that it is a clerical error; that it should read, instead of one or more of its sides, one or two of its sides, for the reason that no explanation is given in any part of the specification as to any more than two of its sides inclined, nor does the drawing attached to the patent show a block having more than two of its sides inclined.

A. Have you examined and do you understand the English patent of Lindsey, put in evidence by the defendant in this case and marked Exhibit D. C. No. 9?

A. I have examined it and think I understand the same.

Q. Please compare it with the Cowing patent in the same
518 way in which you have compared the Cowing patent and that of Chambers.

A. The English patent of Lindsey also describes a pavement composed of stone blocks, the only difference between that and the Chambers patent resting in the fact that in the Lindsey patent the interstices between the blocks are closed with wedge-shaped pieces of stone, forming practically a continuous smooth surface, and in the further fact that in the details of laying the stones they are so arranged as to present in the center and at equal distance from the center three surfaces or tracks, upon which the wheels of passing vehicles may roll, and necessarily differs substantially from the

Cowing patent, as I have already referred to in my comparison of said patent with the Chambers patent.

Q. In what respect, if any, is the pavement described in the patent of Lindsey like a pavement composed of the blocks described by Cowing in his patent?

A. Such a pavement would only be like the Cowing patent from the fact that wedge-shaped spaces or interstices exist be-
519 tween the blocks, but such spaces are not arranged in the same relations with the road-bed as in the Cowing patent, nor are they filled in the same way, nor does the filling accomplish the same result.

Q. Now, I wish you would describe more particularly than you have already done the different results obtained by the use of wood instead of stone in such pavements as those described in the three patents you have just been comparing.

A. In the use of stone blocks with spaces between adjacent blocks the material used for filling said spaces can only serve as a lock by natural cohesion or by the weight of material composing the filling, and is liable to become loosened and disintegrated by travel upon the street, while in the wooden pavement the filling material placed in the wedge-shaped interstices when forced downwardly has a tendency to extend laterally into the fiber of the wood and seat itself therein, so that jarring of the pavement will not tend to displace the same, and will serve as a continuous lock to the blocks,
520 preserving the road-bed or surface of the street.

Q. What, if any, advantage would a pavement composed of the Cowing blocks, as described in his patent, have over a pavement made according to the Chambers method, growing out of the fact that in the latter one-half of the spaces between the blocks are in a line parrallel with the line of the street, while in the Cowing patent they are all at right angles to the line of the street?

A. The disadvantage resulting from the arrangement of the interstices as in the Chambers patent would be the fact that those interstices which are parallel to the line of the street would soon be formed into ruts by the action of the wheels of vehicles passing over the same, consequently loosening the structure, while in a pavement laid according to the Cowing patent the wheels would always practically bridge the interstices and the latter form substantially footholds for horses, there being necessarily less liability in the latter form of pavement of destruction by traffic than in the former.

Q. Have you examined and do you understand the patent
521 known in these proceedings as the Miller & Mason patent, being defendant's exhibit in this case D. C. No. 6?

A. I have, and I think I do.

Q. In the specification of that patent is this expression: "The blocks can be cut with less waste of material by cutting them from timber and splitting the timber with the proper bevel." Please state whether in anything contained in the drawings, specifications, or claims of that patent you find anything substantially identical with the process of making blocks set forth in the patent No. 94063

which is in evidence in this case and marked Complainant's Exhibit G.

A. I do not, and for the reason that if the expression in that patent to which you have referred (the Miller & Mason patent) meant to convey the idea covered by the patent of Ballard and Waddell such expression would be inconsistent with the body of the specification of the Miller & Mason patent, and I have no difficulty in harmonizing the paragraph referred to with the balance of the specifications, because it is apparent that according to the
522 description of this patent a block may be cut from the piece of timber and then split endwise, as illustrated in the exhibit filed in this case marked Complainant's Exhibit 2, figure I of said exhibit. A block made in that way would conform to the paragraph you have quoted and be in harmony with the body of the specification, in which it is stated that the blocks are of the usual size, having the fiber vertical. A block made as just described would have the fiber vertical and intersected by the two oblique sides of the blocks, while according to the method described by the patent of Ballard and Waddell and its splitting process the blocks produced would have but one side intersecting the fiber.

Q. I wish you would state whether from a stick of timber having its grain mathematically straight it would or would not be possible to make paving blocks in the manner indicated in the Ballard and Waddell patent just mentioned, having the fiber vertical.

A. It would not be possible.

Q. Have you examined, and do you understand, the ex-
523 tract from Charles Holtzafeffell's work entitled "Turning and Mechanical Manipulation," which has been put in evidence by the defendant in this case, and is marked Exhibit D. C. No. —; also the patent of McBird, Exhibit D. C. No. 11, and the patent of Normand, Exhibit D. C. No. 12, and the patent of Crosby, Exhibit D. C. No. 13, and the Millegan patent, Exhibit D. C. No. 14, and the patent of Hinchman, Hinchman and Hinchman, Exhibit D. C. No. 15, and the patent of the Bordentown Machine Company, Exhibit D. C. No. 16?

A. I have examined these several exhibits and think I understand generally what they describe and show.

Q. Please compare these patents with that of Ballard and Waddell, 94063, Complainant's Exhibit G.

A. In all of these exhibits there is shown and described machinery of various constructions, involving saws for the cutting of timber and stone, and platforms or beds for the reception of the work to be operated upon are designed to be tilted at an angle to the cutting edge of the saw for producing oblique cuts, but in none of
524 them do I find any suggestion such as is involved in the Ballard & Waddell method of presenting the timber to be cut so that the longitudinal direction of the fiber is intersected in a plane greater or less than a right angle, and the subsequent splitting of a block produced by such sawing on the same table and at the same angle to produce two blocks of precisely the same form and having the fiber in each intersected at only one side and the base of the

Cowing patent, as I have already referred to in my comparison of said patent with the Chambers patent.

Q. In what respect, if any, is the pavement described in the patent of Lindsey like a pavement composed of the blocks described by Cowing in his patent?

A. Such a pavement would only be like the Cowing patent from the fact that wedge-shaped spaces or interstices exist be-
519 tween the blocks, but such spaces are not arranged in the same relations with the road-bed as in the Cowing patent, nor are they filled in the same way, nor does the filling accomplish the same result.

Q. Now, I wish you would describe more particularly than you have already done the different results obtained by the use of wood instead of stone in such pavements as those described in the three patents you have just been comparing.

A. In the use of stone blocks with spaces between adjacent blocks the material used for filling said spaces can only serve as a lock by natural cohesion or by the weight of material composing the filling, and is liable to become loosened and disintegrated by travel upon the street, while in the wooden pavement the filling material placed in the wedge-shaped interstices when forced downwardly has a tendency to extend laterally into the fiber of the wood and seat itself therein, so that jarring of the pavement will not tend to displace the same, and will serve as a continuous lock to the blocks,
520 preserving the road-bed or surface of the street.

Q. What, if any, advantage would a pavement composed of the Cowing blocks, as described in his patent, have over a pavement made according to the Chambers method, growing out of the fact that in the latter one-half of the spaces between the blocks are in a line parrallel with the line of the street, while in the Cowing patent they are all at right angles to the line of the street?

A. The disadvantage resulting from the arrangement of the interstices as in the Chambers patent would be the fact that those interstices which are parallel to the line of the street would soon be formed into ruts by the action of the wheels of vehicles passing over the same, consequently loosening the structure, while in a pavement laid according to the Cowing patent the wheels would always practically bridge the interstices and the latter form substantially footholds for horses, there being necessarily less liability in the latter form of pavement of destruction by traffic than in the former.

Q. Have you examined and do you understand the patent
521 known in these proceedings as the Miller & Mason patent, being defendant's exhibit in this case D. C. No. 6?

A. I have, and I think I do.

Q. In the specification of that patent is this expression: "The blocks can be cut with less waste of material by cutting them from timber and splitting the timber with the proper bevel." Please state whether in anything contained in the drawings, specifications, or claims of that patent you find anything substantially identical with the process of making blocks set forth in the patent No. 94063

which is in evidence in this case and marked Complainant's Exhibit G.

A. I do not, and for the reason that if the expression in that patent to which you have referred (the Miller & Mason patent) meant to convey the idea covered by the patent of Ballard and Waddell such expression would be inconsistent with the body of the specification of the Miller & Mason patent, and I have no difficulty in harmonizing the paragraph referred to with the balance of the specifications, because it is apparent that according to the
522 description of this patent a block may be cut from the piece of timber and then split endwise, as illustrated in the exhibit filed in this case marked Complainant's Exhibit 2, figure I of said exhibit. A block made in that way would conform to the paragraph you have quoted and be in harmony with the body of the specification, in which it is stated that the blocks are of the usual size, having the fiber vertical. A block made as just described would have the fiber vertical and intersected by the two oblique sides of the blocks, while according to the method described by the patent of Ballard and Waddell and its splitting process the blocks produced would have but one side intersecting the fiber.

Q. I wish you would state whether from a stick of timber having its grain mathematically straight it would or would not be possible to make paving blocks in the manner indicated in the Ballard and Waddell patent just mentioned, having the fiber vertical.

A. It would not be possible.

Q. Have you examined, and do you understand, the ex-
523 tract from Charles Holtzafeffell's work entitled "Turning and Mechanical Manipulation," which has been put in evidence by the defendant in this case, and is marked Exhibit D. C. No. —; also the patent of McBird, Exhibit D. C. No. 11, and the patent of Normand, Exhibit D. C. No. 12, and the patent of Crosby, Exhibit D. C. No. 13, and the Millegan patent, Exhibit D. C. No. 14, and the patent of Hinchman, Hinchman and Hinchman, Exhibit D. C. No. 15, and the patent of the Bordentown Machine Company, Exhibit D. C. No. 16?

A. I have examined these several exhibits and think I understand generally what they describe and show.

Q. Please compare these patents with that of Ballard and Waddell, 94063, Complainant's Exhibit G.

A. In all of these exhibits there is shown and described machinery of various constructions, involving saws for the cutting of timber and stone, and platforms or beds for the reception of the work to be operated upon are designed to be tilted at an angle to the cutting edge of the saw for producing oblique cuts, but in none of
524 them do I find any suggestion such as is involved in the Ballard & Waddell method of presenting the timber to be cut so that the longitudinal direction of the fiber is intersected in a plane greater or less than a right angle, and the subsequent splitting of a block produced by such sawing on the same table and at the same angle to produce two blocks of precisely the same form and having the fiber in each intersected at only one side and the base of the

block, where it intersects the plane side at less than a right angle thereto. I do not understand the Ballard and Waddell patent to cover any special machinery for accomplishing the end sought, but to consist in a particular method by which the results are accomplished.

Q. Do you find in any of the last-named patents any reference to the production of a block having the grain of the wood running in any determined relation to the sides thereof?

A. None whatever.

525 Q. Assuming the state of the art involved in this discussion to be exemplified by these last-named patents, state whether or not the paragraph in the Miller & Mason patent, which have been heretofore cited, would of itself enable one skilled in the art to understand that what is there referred to is what was afterwards patented by Ballard and Waddell in the patent marked Complainant's Exhibit G.

(Mr. Bailey, of counsel for the defendant, objects to the question as incompetent.)

A. I should think not.

Cross-examination by Mr. BAILEY:

Q. How were wood pavements made and laid before Cowing's time?

A. I believe I have testified in my examination-in-chief that I was not familiar with the practical laying of pavements anterior to the grant of these patents—made no study of the subject; consequently I would be incompetent to answer that question.

Q. Do you know anything about the so-called Nicholson pavement?

A. Yes, sir; I think I do.

Q. How is that made?

526 A. That is a matter of recollection only. If I recollect correctly, the pavement was composed of rectangular blocks and spaced by spacing plank or paling, and the interstices were filled with concrete material, the sides of the space being vertical.

Q. How are the blocks arranged?

A. The blocks were arranged from curb to curb in straight rows. If I recollect correctly, the interstices traveled from curb to curb, forming foot-holds for the horses.

Q. In what respect did that pavement differ from the pavement described in the Cowing patent?

A. Differs in the contour of the blocks and the spaces between the same, and in the further fact that the bases of the blocks in the Cowing patent are contiguous to each other, while in the Nicholson pavement they were not, being some distance apart at the base.

Q. In the pavement the blocks were arranged in rows crosswise of the street, with a space for filling material intervening between the rows also running crosswise of the street; is that not so?

A. That is so.

527 Q. Were not truncated wedge-shaped wooden paving blocks known at the time Cowing applied for his patent?

A. So far as the record in this case is concerned (and my familiarity with the state of the art refers only to this record) such blocks were not known prior to the filing of the application upon which Mr. Cowing's patent was granted.

Q. Was it not old, at the time Cowing applied for his patent, to gain a space between adjoining rows of blocks for the introduction of the filling by giving those blocks a truncated wedge-shape form and laying them in rows upon their larger ends, as in the Cowing patent?

A. It was; but, so far as I am aware, this result was only accomplished by the use of stone blocks, as previously described by me and as illustrated in the English patents to which I have referred in my examination.

Q. There was, therefore, so far as you were informed, nothing novel in the form of the block at that time?

528 A. So far as I am informed, I should think there was something novel in the form of the block, for, according to my understanding of the Cowing patent, it has two of its sides vertical and two others oblique, while in the stone blocks referred to all of the sides are, more or less, oblique.

Q. Does not Lindsey in his English patent, Defendant's Exhibit No. 9, state that each stone or each block is made of a wedge form?

A. I had overlooked that paragraph in the Lindsey patent. My previous answer, in view of this paragraph, should be modified accordingly.

Q. I understand you, then, to say that in your judgment there was nothing novel in the form of the Cowing block at the time he applied for his patent?

(Mr. Worthington, of counsel for complainants, objects to the question as assuming that the Cowing patent is for a block, whereas it is for a pavement.)

A. Evidently not, as a mathematical figure.

Q. And in your judgment, was there anything novel at the time he applied for his patent in the manner of laying such shaped blocks as illustrated in his patent?

529 A. There was apparently nothing novel in laying such shaped blocks, reducing the necessary space between them.

Q. Was there anything novel in the filling which he used?

A. Concrete filling was not new, I believe, at that time.

Q. And at that time had not both wood and stone been extensively used for paving purposes?

A. As to stone, I know a great deal had been laid, but as to wood I am not familiar with the amount that was laid.

Q. Did you have anything to do with the Cowing case during its pendency as an application in the Patent Office?

(Mr. Worthington, of counsel for complainants, objects to the question as not being cross-examination.)

A. I have not the slightest recollection on the subject. I may or may not have had something to do with that patent. I have not examined the record of the proceedings in that case at all before the Patent Office.

Q. Then I wish you would state on what ground you as-
530 sume that the use of the words "one or more" in the claim of that patent is the result of a clerical error.

A. For the reason, as I have already explained, that that expression in the claim is inconsistent with the drawings and inconsistent with every other part of the specification as I understand it.

Q. I wish you would look through the certified copy of the contents of the Cowing patent, Defendant's Exhibit No. 5, and state whether you do not find that clerical error in a number of places in that exhibit, occurring at different times.

A. In looking over the exhibit referred to I find in the history of the case one or more claims where the words "one or more sides" are used, but I still think that in view of the general description intended to demonstrate that a block might be made with one side inclined, or two sides inclined, or that two inclined sides might be produced by laying two blocks having one vertical or inclined side with one inclined side adjacent—in view of all these facts I think that the words "one or more" are intended to mean one or two sides.

531 Q. What do you understand to be intended by the words "or other suitable filling" in the claim of Cowing's patent, Complainant's Exhibit A?

A. Any suitable material that will accomplish the same result as described in this patent for acting as a key to bind and confine the blocks in their places. Those words are usually used in a patent to avoid apparently limiting it to any special feature when an equivalent may be used to accomplish the same result.

(At the request of defendant's counsel, adjourned until to-morrow, Tuesday, March 14th, 1882, at one o'clock p. m.)

TUESDAY, *March* 14, 1882—2 'c'k p. m.

Met pursuant to adjournment.

Present: Counsel for respective parties and the witness.

W. Cranch McIntire.

Cross-examination continued by Mr. BAILEY:

Q. Referring to the McBird patent, Defendant's Exhibit 11, does not the patentee by the first cut which he makes produce a rhomboidal-shaped block?

WITNESS: You mean assuming one cut has been made?

532 Mr. BAILEY: Why, of course.

A. Yes; he does produce a block of rhomboidal form.

Q. And does he not by a second oblique cut divide his block into two equal wedge-shaped blocks?

A. He does.

Q. And by a method of procedure involving these two cuts does he not produce two wedge-shaped blocks without waste of material?

A. He does.

Q. In what respect, then, does his method of procedure differ from that set forth in Ballard & Waddell's patent, "Complainant's Exhibit G?"

A. In this particular both his original cut to produce the rhomboid and the subsequent cut to divide it into two wedge-shaped pieces are made upon the material in the same plane, while in the Ballard & Waddell patent the first cut to produce the rhomboid is across the grain. The rhomboid so made is then turned on the grain end and split transversly to the original cut, which
533 would produce the peculiar result, as described, touching the relation of the grain, being parallel with one side and oblique to the other.

Q. Suppose that the material operated on by McBird were wood instead of stone would that make the method different?

A. Not if the material was subjected to the action of the saw substantially the same way.

Q. Suppose, then, that McBird should operate on wood instead of stone, what would be the difference between his method of procedure and that described in Ballard & Waddell's patent referred to?

A. As already stated, the difference would consist in the fact that the material operated upon in the McBird case is not turned at right angles with the second cut, as it is in the Ballard & Waddell case, but remains in its original position upon the horizontal and revolving table.

Q. What would be the effect of cutting a block in the way McBird cuts it, so far as the block itself is concerned?

A. Assuming that the timber operated upon in both cases is alike, the wedge-shaped blocks produced by the McBird
534 process would have the fiber running parallel with the base of the block, while in the Ballard and Waddell process it would run, as already described, parallel with one and oblique to the other of its sides.

Q. Is not this the only difference between the two, that the second oblique cut which divides the rhomboid and the two wedge-shaped blocks is, in McBird's case, made across the grain, while in Ballard & Waddell's case it is made substantially parallel with or in the general direction of the grain?

A. As far as the cutting operation is concerned, that is true.

Redirect by Mr. WORTHINGTON:

Q. I want to ask you whether you have examined the Nicholson patent which is in evidence here, Defendant's Exhibit D. C. 7.

(Witness examines said patent.)

A. I have examined it.

Q. And do you understand it?

A. Yes; I do.

Q. I will ask you to compare that patent in connection
535 with the Lindsey patent, Defendant's Exhibit D. C. 9, and the Chambers patent, Defendant's Exhibit D. C. No. 10, on the one hand, with the Cowing patent, Complainant's Exhibit A, on the other, and state whether or not the three former combined contain substantially the improvement which is patented in the latter, and give the reasons for your answer.

A. I do not think they contain substantially what is covered by the Cowing patent, for the reason that the Lindsey patent and the Chambers patent illustrate and describe stone block pavements having the peculiarities described in my examination-in-chief, which renders keying of the blocks by the interposed material in the interstices impracticable as compared with the pavement composed of wooden blocks, and the Nicholson pavement, though being made of wooden blocks, is so arranged that the sides thereof are parallel, leaving straight-sided interstices, within which the concrete material would not operate to key the adjacent blocks as it would in the case of the wedge-shaped space shown in the Cowing patent, having
536 wooden sides, the pressure in the latter case of the concrete material in a vertical direction tending always to wedge it outwardly into the sides of the block, and thereby producing the more substantial block or key than would be the case either in the stone pavement with wedge-shape spaces or the Nicholson pavement with the straight-sided or vertical-sided interstices.

Recross by Mr. BAILEY:

Q. Is the opinion you have expressed in your preceding answer the result of your observation of the practical difference between the kinds of pavements to which you refer?

A. I have had no practical experience in the laying of wood pavements, and my opinion is based upon my own theory, resulting from a comparison of the several pavements and general discussions in conversations years gone by that I have heard.

Q. Can you recall any one whom you have heard in years gone by discuss the comparative merits of such pavements as the
537 Cowing and Chambers and Lindsey pavements?

A. I cannot recall any discussion with special reference to the difference between stone and wood, but I recollect on several occasions having heard discussed the relative merits in wood pavements of the wedge-shaped space and the vertical-sided spaces by such men as Ballard and Charles F. Blake and others that I do not now recollect. At the time I speak of it was the subject of discussion amongst gentlemen whom I met at that time and who were interested in wood pavements. I have no practical knowledge on the subject, never having been engaged in laying pavements.

Redirect by Mr. WORTHINGTON:

Q. Aside from the theoretical advantage of the Cowing pavement over the Nicholson pavement which you have referred to, are the

two pavements covered by these respective patents substantially the same?

(Mr. Bailey, of counsel for the defendant, objects to the question as unwarranted.)

A. My individual opinion is that they are not substantially
538 the same, but that is a question involving a question of law as to what constitutes invention or whether there is a difference amounting to an invention, which I suppose will be determined by those more competent to judge than myself.

(Adjourned until to-morrow, Wednesday, March 15th, 1882, at 3 o'clock p. m.)

WM. C. McINTIRE.

Subscribed and sworn to before me this 27th day of May, A. D. 1882.

ALBERT HARPER,
Ex'r in Chancery.

WEDNESDAY, *March* 15, 1882—3 'c'k p. m.

Met pursuant to adjournment.

At request of counsel for complainant adjourned until Monday, March 20th, 1882, at one o'clock p. m.

MONDAY, *March* 20, 1882— 1 'c'k p. m.

Met pursuant to adjournment.

At request of counsel for complainant adjourned until Tuesday, March 21st, 1882, at 3 'c'k p. m.

539 TUESDAY, *March* 21, 1882— 3 'c'k p. m.

Met pursuant to adjournment.

At request of counsel for complainant adjourned to Wednesday, March 22d, 1882, at 3 'c'k p. m.

WEDNESDAY, *March* 22d, 1882—3 'c'k p. m.

Met pursuant to adjournment.

At request of counsel for complainant adjourned subject to notice.

540 TUESDAY, *March* 28, 1882, 2 'c'k p. m.

Met pursuant to agreement.

Present: Mr. Worthington, of counsel for complainant, and Mr. Francis Miller, of counsel for defendant; also the examiner and—

HENRY S. DAVIS, who, being produced as a witness on behalf of the complainants, of lawful age, and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

Q. Please state your name, age, occupation, and residence.

A. Henry S. Davis. My age, within a few days, is sixty-eight. I

have no occupation at present. My residence is Washington, D. C.

Q. Do you know Nathan C. Draper, of this city?

A. Very well.

Q. How long have you known him?

A. It would be impossible for me to fix the date as to how long I have known him, but I suppose somewhere in the neighborhood of thirty years.

541 Q. Did you know Josiah Truman?

A. Yes, sir. I knew him very well. He is dead.

Q. When did he die?

A. I can't tell you, sir. Three or four years ago, I think, though.

Q. Were you ever in business with Truman and Draper?

A. I was.

Q. In partnership with them?

A. Yes, sir.

Q. In what business?

A. In mill business—lumber mill.

Q. Here?

A. Yes, sir.

Q. What was the name of the partnership?

A. Truman, Draper & Company.

Q. When was that firm formed?

A. I think it was formed on the 13th of November, 1860.

Q. How long did you three continue in partnership?

A. Well, that I can't answer definitely, but we continued in partnership until I bought Mr. Truman out, and the land records will show at what time that was done.

542 Q. After you bought Truman out who were in the firm then—who carried on the business?

A. Mr. Draper and myself carried it on.

Q. What was the next change in the firm?

A. The next change in the firm was my purchase of the other third interest. I purchased a third interest when I first went in. I then bought Mr. Truman out afterwards, and his father, Henry Truman, owned the other third interest. Mr. Draper owned nothing.

Q. You bought out the elder Truman?

A. I bought him out; then I had the whole concern; but, in the meantime, between the time after I had bought out Mr. Truman, Josiah Truman, Mr. Draper, and myself continued the business together, and after I bought out the other interest I agreed to sell one-half of the interest to Mr. Draper on certain conditions, which he did not comply with; but I had given him a written paper that he should have one-half interest if he paid for it, but he never paid a cent, so I had the mill sold by agreement between himself and me.

543 (Mr. Miller, of counsel for the defendant, objects to all this testimony as incompetent and irrelevant.)

Q. Please look at this paper, dated June 11th, 1864, which is signed H. S. Davis, and say whether that is your signature to that paper.

A. Yes, sir; and that is my handwriting.

(Said paper is here offered in evidence by complainant's counsel, and the same is filed herewith and marked Exhibit H. S. D. No. 1.)

Q. Was this paper drawn up before or after Truman retired from the firm?

A. It was drawn up afterwards, as you will see by the date there.

Q. Can you tell about how long before the date of that paper it was that Truman retired from the firm?

A. I cannot tell the date, but it was very shortly before that that I bought Truman's interest out—very shortly.

Q. I understand you had bought Truman's one-third interest yourself individually?

A. Yes, sir.

Q. And by this paper you offered to sell one-half to Draper?

544 A. Yes, sir; I offered to sell one-half to Draper. Before I offered to sell one-half to Draper I bought Henry Truman out, too. When that paper was written out I had bought Henry Truman out. This paper is dated June 11th, 1864. You will find, I think, by the papers on record that I had bought out Henry Truman's interest before I wrote that paper or signed it.

Q. And you bought out Henry after you bought Josiah, as I understand it?

A. Yes; I think I bought Josiah's interest some time in 1863?

Q. Now, when did you retire from that mill business altogether—about what time?

A. I retired from there the first of May, 1867—the second of May, I believe.

Q. At any time that you were in that mill business do you remember of any work having been done for a man named George Wright, who was superintendent at the arsenal in this city?

A. No, sir; I do not.

Q. How long have you resided in this city?

A. Forty-nine years the 4th of next July.

545 Q. Can you tell us whether Mr. Draper has been aware of late years that you are living here?

A. Why certainly he knows it.

Cross-examination by Mr. MILLER:

Q. Did you have anything to do with the management of this business of Draper & Company—this mill company?

A. I had to manage it altogether pretty much after I got there.

Q. I mean in regard to the work that was done there; did you attend to the work that was done or did you attend to the financial part of the business?

A. I kept the books myself; I don't recollect of anything in regard to Mr. Wright at the arsenal having any work there; I am very confident he did not.

Q. That was up to what time?

A. That was up to the second of May, 1867.

Q. Well, who attended to superintending the work that was done in the mill?

A. Well, Mr. Draper attended to the business and I at-
546 tended to it and Mr. Truman attended to it; we all attended to it. I was as frequently in there attending to it as anybody else almost, and I kept the books myself; made out all the accounts and collected the bills.

Q. How long did Mr. Truman continue at the mill?

A. I think it was some time in 1863. I can't give the date, sir; it is impossible for me to do so.

Q. Was he employed there after that time, do you know?

A. No, sir; he was not?

Q. Do you know whether he was employed there after you left?

A. Never, that I heard of. I think not.

Q. But do you know anything about it?

A. I don't know. I am very certain he was not.

Q. You retired in May, '67, you say?

A. Yes, sir; I sold out, as I have already stated, to Draper, Bodine and Thomas.

Q. Were you about the establishment after that time?

A. No, sir; I was very seldom there.

Q. I understood you to say that there were two of these Trumans—Henry and Josiah?

A. Josiah was the son of Henry.

547 Q. Which one acted as foreman of the establishment?

A. The mill really belonged to the Trumans, but Mr. Draper was kind of foreman for them, and he worked upon the mill.

Redirect by Mr. WORTHINGTON:

Q. During the years from 1861 down to 1867 was Mr. Draper engaged in milling at any mill except the one at which he was with you?

A. No, sir; not that I know of.

HENRY S. DAVIS.

Subscribed and sworn to before me this first day of April, A. D. 1882.

ALBERT HARPER, *Examiner.*

548 EXHIBIT H. S. D. No. 1.

WASHINGTON, *June 11th*, 1864.

Know all men by these presents that I, H. S. Davis, have this day bargained and agreed to sell to N. C. Draper one-half of one-third interest in the Mechanics' Planing Mill, situated at the corner of 13th and C streets west, in the city of Washington, District of Columbia, on the following terms, viz:

The total sum to be paid for said interest is twenty-three hundred and sixty-five dollars, of which sum seven hundred and seventy-five dollars cash in hand paid, the receipt of which is hereby acknowl-

edged, and the balance in three instalments each as follows, to wit: One note of hand for six months for five hundred and fifteen dollars, one note of hand for twelve months for five hundred and thirty dollars, and one note of hand for eighteen months for five hundred and forty-five dollars, each bearing interest from date until paid.

And on the payment of said notes I bind myself, executors, administrators, and assigns, to convey to the said Draper, his
549 *airs* or assigns, the said one-half of one-third of said planing mill, including one-third of one-half of *of* the *liece*hold on which the said mill now stands, together with all the machinery and buildings thereto belonging.

H. S. DAVIS.

[Endorsed:] Brown *v.* District of Columbia. In equity. No. —. Exhibit H. S. D. No. 1.

550 DANIEL E. SPEER, being produced as a witness in rebuttal on behalf of the complainant, of lawful age, and duly sworn, deposes and says:

Direct examination by Mr. WORTHINGTON:

Q. What is your name, age, residence, and business?

A. Daniel E. Speer; in my forty-fifth year—forty-four years old the 10th of last February; 309 13th street southwest; carpenter and joiner.

Q. Do you know Daniel N. Row, who is present here?

A. Yes, sir.

Q. How long have you known him?

A. Well, I have known him—let's see—eight or nine years; maybe a little longer than that. I forget now exactly how long.

Q. Do you know Nathan C. Draper?

A. Yes, sir.

Q. Ever work for him?

A. I worked for him down at Barthalow's wharf.

Q. When was that?

A. During the time of the Board of Public Works, when they were cutting blocks.

551 Q. Pavement blocks, you mean?

A. Yes, sir.

Q. In what capacity were you working for him there?

A. I was foreman; had full charge of the entire mill—that is, so far as employing, discharging, and paying off, and all that.

Q. Well, now, do you know that Mr. Row ever had anything to do down there?

A. Yes, sir; he was there nearly all the time.

Q. What was Mr. Row doing down there?

A. He seemed to be looking after the proper shape for the blocks, examining them and measuring them and seeing that they were cut in the proper shape.

Q. Did he give you any instructions about it?

A. Yes, sir; he frequently came around and picked up a block

and measured it to see if one end was a little too wide or the other end a little too narrow.

Q. Did you observe the instructions that he gave you about making the blocks?

A. I understood what was required, what was called for, and
552 if anything was omitted in the business I rectified it as soon as I observed it or my attention was called to it.

Q. He sometimes called your attention to little things going wrong?

A. Yes; very frequently.

Q. It seemed to be his business to watch and see that the blocks were properly shaped?

A. I don't know what his business was. It seemed to be his business. It was my business to attend to it whenever I was notified that matters were not proper. It was my duty when my attention was called to it by him or I observed it, that the blocks were not particularly cut according to what was required, to rectify it.

Q. Was Mr. Row there pretty much all the time?

A. Yes, sir; he was. Sometimes half a dozen — a day; sometimes he was not there so much.

(Cross-examination waived.)

DANIEL E. SPEER.

Subscribed and sworn to before me this 31st day of March, A. D. 1882.

ALBERT HARPER, *Examiner.*

553 DANIEL N. ROW recalled.

Direct examination by Mr. WORTHINGTON:

Q. You have been sworn and testified before?

A. Yes, sir.

Q. Mr. Row, referring to your being employed in 1872 or thereabouts, as you have previously testified, in superintending the making of blocks for laying in pavements here, what had you to do with the measuring of lumber there?

A. I did not measure any lumber in stick.

Q. What did you measure it in?

A. All that I measured was the block, the shape of the block, to see that it had the right proportions. Mr. C. H. Saterlee and John Luckett were the parties who measured the lumber, Mr. Luckett carrying the rod and Mr. Saterlee taking account of the dimensions, length, &c.

(Cross-examination waived.)

DANIEL N. ROW.

Subscribed and sworn to before me this 31st day of March,
554 A. D. 1882.

ALBERT HARPER, *Examiner.*

The testimony in rebuttal on behalf of the complainants is, this 28th day of March, A. D. 1882, closed.

ALBERT HARPER, *Examiner.*

555 I certify that the foregoing depositions (containing fifty-eight manuscript pages) were written down by me, as an examiner in chancery of this court, in short-hand as uttered by the deponents thereof, and afterwards written out in long hand, and that each deposition was read to the respective deponent thereof, and thereupon subscribed and sworn to by said respective deponents before me.

I further certify that I am not of counsel nor in anywise interested in this case.

ALBERT HARPER,
Ex'r in Chancery.

556 *Motion for Leave to Amend Answer. Filed June 27, 1881.*

In the Supreme Court of the Dist. of Columbia. In Equity.

T. E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

And now comes the District of Columbia and moves the court for leave to amend its answer heretofore filed in this cause.

FRANCIS MILLER,
Solicitor for Def't.

Affidavit of Marcellus Bailey in Support of Motion to Amend Bill. Filed June 28, 1881.

In the Supreme Court of the District of Columbia. In Equity.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } 7239, Doc. No. 20.

Marcellus Bailey, being duly sworn, deposes and says that the several United States and British letters patent recited in the proposed amendment to the answer of the defendant in the above-entitled cause relate to and cover the subject-matter of the letters patent recited in the complainant's bill; that they are anterior in date to complainant's said letters patent, and that they are material
557 and necessary to a disclosure of the prior state of the art to which complainant's said letters patent relate.

MARCELLUS BAILEY.

Subscribed and sworn to before me this 27th day of June, A. D. 1881.

[SEAL.]

E. A. DICK,
U. S. Com'r for D. C.

Order Allowing Amendment to Answer. Filed June 28, 1881.

In the Supreme Court, Dist. of Col'a. In Eq.

BROWN
vs.
THE DIST. OF COLUMBIA. } No. 7239.

Let this amendment be filed.
By order of the court.
June 28, 1881.

A. WYLIE.

Amendment to Answer. Filed June 28, 1881.

In the Supreme Court of the District of Columbia. In Equity.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239.

And now comes the District of Columbia, by leave of the court first had and obtained, and amends its answer heretofore filed in this cause by inserting after the words "and H. L. Cranford,
558 No. 93280, issued August 3d, 1869," in paragraph 4 of its said answer, the words and figures following, to wit:

And by patents granted to J. Brown, No. 5336, issued October 23d, 1847; H. L. Vroonan, No. 15026, issued June 3d, 1856; Weight and Molyneux, No. 48349, issued June 29, 1865; C. B. Normand, No. 11946, issued November 14, 1854; C. C. Heirchman, No. 39099, issued June 30, 1863; J. H. Preston, No. 87430, issued March 2d, 1869; J. Lenman, No. 24314, issued June 7, 1859; J. F. Gamble, No. 25109, issued August 23d, 1859; H. Millingar, No. 42212, issued April 5, 1864; J. Bell, No. 13696, issued October 23d, 1855; P. Crosby, No. 2321, issued November 3d, 1841; S. Nicholson, No. 11491, issued August 8, 1854; reissue No. 1583, December 1, 1863; reissue No. 2748, August 20, 1867, and also covered by previous patents granted by the Government of Great Britain to Richard MacNamara, No. 4616, issued November 20, 1821; Abraham H. Chambers, No. 4906, issued February 28, 1824; John Lindsay, No. 5185, issued June 14, 1825; Thomas Parkins, No. 8026, issued April
559 9, 1839; David Stead, No. 8041, issued April 23d, 1839; Richard Hodgson, No. 8135, issued June 27, 1839; James Smith, No. 978, issued December 6, 1852, and Austin, No. 3937, issued A. D. 1843.

FRANCIS MILLER &
MARCELLUS BAILEY,
Att'ys for Defendant

Cause Set Down for Hearing March 29, 1882.

In the Supreme Court of the Dist. of Columbia.

TALLMADGE E. BROWN
vs.
THE DIST. OF COLUMBIA. } Equity 7239.

Calendar this cause for April term, '82.

A. S. WORTHINGTON,
Solicitor for Compl't.

Calendared, as ordered, March 29th, 1882, by the clerk.

560 *Order Dismissing Bill. Filed June 27th,* 1882.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } Eq. No. 7239.

This cause coming on to be heard on the bill, answer, and replication, and the proofs herein, after argument of counsel and consideration thereof, it is this 27th day of June, 1882, ordered that the bill of complaint herein be, and the same is hereby, dismissed with costs.

WALTER S. COX, *J.*

Appeal to Gen. Term, July 5, 1882.

In the Supreme Court of the Dist. of Columbia.

T. E. BROWN
vs.
THE DIST. OF COLUMBIA. } Equity 7239.

The clerk will enter an appeal to the court in general term from the decree in special term dismissing the bill of complaint in this cause.

A. S. WORTHINGTON,
Of Counsel for Compl't.

Appeal entered, as ordered, July 5, 1882, by the clerk.

561 *Appeal Bond to Gen. Term. Filed July* 24, 1882.

In the Supreme Court of the District of Columbia the — day of July, 1882.

TALLMADGE E. BROWN, Plaintiff,
vs.
THE DISTRICT OF COLUMBIA, Defendant. } No. 7239, Equity Docket 20.

The complainant having appealed to the general term from the

decree pronounced herein on the 27th of June, 1882, in the special term of this court, and Amazi L. Barber, surety for said appeal, for themselves and each of them, their and each of their heirs and personal representatives, appearing and submitting to the jurisdiction of the said general term, hereby undertake to abide by, perform, and pay its judgment, which they agree may be pronounced against all of them.

TALLMADGE E. BROWN, *Appellant.*
A. L. BARBER, *Surety.*

(Endorsed:) I consent to approval of this bond. Francis Miller, ass't att'y D. C. July 24th, 1882. Approved. A. B. Hagner, asso. justice. July 24, 1882.

562 *Stipulation as to Hearing. Filed Mar.* 27, 1884.

In the Supreme Court of the District of Columbia.

BROWN
vs.
THE DISTRICT OF COLUMBIA. } Eq. No. 7239.

It is hereby stipulated and agreed between the counsel in this cause that it shall be continued for the present term; that the complainant shall have the privilege of setting the case for hearing at the April term at any time after the 5th day of May that he may designate on or before the beginning of the April term; and if no such time be designated, as stipulated, the case shall be continued till the September term and be heard at that term.

March 27th, 1884.

C. C. COLE,
Sol'r for Compl'ts.
FRANCIS MILLER,
Sol'r for Defendant.

563 *Decree Dismissing Bill. Filed June* 3, 1884.

In the Supreme Court of the District of Columbia. In General Term.

BROWN
vs.
THE DISTRICT OF COLUMBIA, } Eq. No. 7239.

This cause coming on to be heard on the appeal from the special term dismissing the bill with costs, and having been argued by counsel and duly considered, it is this 2nd day of June, 1884, ordered, adjudged, and decreed that the said decree be, and the same is hereby, affirmed and the bill herein dismissed with costs.

By the court:

D. K. CARTTER,
Ch'f Justice.

Appeal and Allowance Thereof. Filed Dec. 18th, 1884.

In the Supreme Court of the District of Columbia.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } Eq. No. 7239.

564 The complainant, by his solicitor, C. C. Cole, Esq., in open court, this 18th day of December, 1884, prays an appeal from the decree of the general term passed on the 2nd day of June, 1884, dismissing his bill with costs, and his appeal is allowed by the court, and the amount of the bond in this appeal is fixed at five hundred dollars. The solicitor for the defendant in open court waived service of citation.

By the court:

D. K. CARTTER,
Ch'f Justice.

Citation. Filed Dec. 18th, 1884.

UNITED STATES OF AMERICA, *ss:*

The President of the United States to the chief justice and justices of the supreme court of the District of Columbia, Greeting:

Because in the record and proceedings, as also in the rendition of a decree in a suit in chancery which is in the said court, before you, between Tallmadge E. Brown, complainant, and The District of
565 Columbia, defendant, a manifest error hath happened, to the great damage of the said complainant, as by his complaint appears, and it being fit that error, if any hath happened, should be duly corrected and full and speedy justice done to the parties aforesaid in this behalf, therefore you are hereby commanded, if decree be therein given, under your seal, distinctly and openly, to send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same at Washington on the second Monday of October next, in the said Supreme Court to be then and there held, that, the record and proceedings aforesaid being inspected, the said Supreme Court may cause further to be done therein to correct that error what of right and according to the law and custom of the United States should be done.

Witness the Honorable Morrison R. Waite, Chief Justice of the United States, this 18th day of December, in the year of our Lord 1884, and of the Independence of the United States the 109.

566 DISTRICT OF COLUMBIA, *To wit:*

To the District of Columbia:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be holden at Washington on the

second Monday of October next, pursuant to an appeal filed in the clerk's office of the supreme court of the District of Columbia, wherein Tallmadge E. Brown is complainant and you are defendant, to show cause, if any there be, why the decree in the said appeal mentioned should not be corrected so that speedy justice be done the parties in that behalf.

Witness David K. Cartter, chief justice of the said supreme court of the District of Columbia.

D. K. CARTTER,
Ch'f Justice.

(Endorsed on back: Service of this citation acknowledged this 18th day of December 1884. Francis Miller, solicitor for defendant.)

567 *Appeal Bond to the Supreme Court U. S. Filed Dec.* 19, 1884.

In the Supreme Court of the District of Columbia, the 18th Day of December, 1884.

TALLMADGE E. BROWN
vs.
THE DISTRICT OF COLUMBIA. } No. 7239, Eq. Docket—.

On appeal.

Know all men by these presents that we, Tallmadge E. Brown — —— ——, are bound unto the above-named The District of Columbia in the sum of five hundred dollars, to be paid to the said The District of Columbia, *his* executors or administrators; to which payment, well and truly to be made, we bind ourselves and each of us, jointly and severally, and our and each of our heirs, executors, and administrators, firmly by these presents.

Sealed with our seals and dated this 18th day of December, 1884.

Whereas the above-named Tallmadge E. Brown has prosecuted an appeal to the Supreme Court of the United States to reverse the decree rendered in the above suit by the said supreme court of the District of Columbia:

Now, therefore, the condition of this obligation is that if the above-named Tallmadge E. Brown shall prosecute his said appeal to effect and answer all damages and costs if he shall fail to make good his appeal, then this obligation shall be void; otherwise the same shall be and remain in full force and virtue.

TALLMADGE E. BROWN,
By C. C. COLE, *His Sol'r.*
G. W. CLARK.

Sealed and delivered in presence of—
—— ——.

Mr. G. W. Clark, who has signed this bond as surety, is abundantly good for the amount of the bond.
19 Dec., '84.

A. S. WORTHINGTON.

Approved this 19th Dec., 1884.

D. K. CARTTER,
Chief Justice.

568 AUTHENTICATION OF RECORD.

Clerk's Certificate.

CLERK'S OFFICE,
SUPREME COURT OF THE DISTRICT OF COLUMBIA.

I, R. J. Meigs, clerk of the said court, do hereby certify that the writings annexed to this certificate are true copies of originals on file and of record in said office, and that said originals together constitute the record of the proceedings of said court in this cause.

Witness my hand and the seal of said court this 10th day of September, 1885.

[Seal Supreme Court of the District of Columbia.]

R. J. MEIGS, *Clerk.*

Endorsed on cover: District of Columbia supreme court. No. 137. Tallmadge E. Brown, appellant, *vs.* The District of Columbia. Filed October 16, 1885.

130 U. S. 104

Richardson is [illegible]
Nelson is do
Nelson is do
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See 133 U. S. §§ 30 & 49

Supreme Court of the United States.

OCTOBER TERM, 1888.

No. 137.

TALLMADGE E. BROWN, Appellant,

vs.

THE DISTRICT OF COLUMBIA.

BRIEF FOR APPELLANT.

A. S. WORTHINGTON,
Of Counsel for Appellant.

McQUEEN & WALLACE, LAW PRINTERS, WASHINGTON, D. C.

IN THE

Supreme Court of the United States.

October Term, 1888.

No. 137.

TALLMADGE E. BROWN, APPELLANT,

vs.

THE DISTRICT OF COLUMBIA, APPELLEE.

BRIEF FOR THE APPELLANT.

Statement of the Case.

This is an appeal from a decree of the Supreme Court of the District of Columbia, in general term, dismissing the appellant's bill of complaint. The bill was filed on April 14, 1880. It avers that the appellee (the defendant below) had infringed three letters patent of the United States, numbered, respectively, 101,590, 94,062, and 94,063, by making, laying, and using wood pavements, substantially like those described in and covered by those patents, in the streets, avenues, and alleys of Washington and Georgetown, in the District of Columbia. The bill further states that patent No. 101,590 was for an invention made by one Turner Cowing, who assigned his invention

before the issuing of the patent to the appellant, to whom the patent issued. As to patents Nos. 94,062 and 94,063, it is averred that they were for inventions made by William W. Ballard and Buren B. Waddell, and that Waddell, before the issuing of the patents, assigned his interest therein to Ballard, to whom the patents issued. The bill then sets out certain assignments by which the title to all three of these patents became vested in the complainant, said Ballard, and one Edward L. Marsh, and that afterward, on the 20th of June, 1874, Ballard and Marsh assigned to the complainant "all their rights, equities, and causes of action against any and all persons whomsoever, and especially their interest in suits brought or to be brought for the infringement of any of the said patents or any claims for royalty thereunder."

In the original bill the date of the alleged infringement is said to have been "in the years 1870, 1871, 1872, 1873, 1874, 1875, and 1876" (3). But before answer filed the bill, by leave of court, was twice amended (14, 15) in this respect, the last amendment making the bill read as to the date of infringement thus: "in the years 1870, 1871, 1872, and 1873, and between the 1st day of January, 1874, and the 22d day of June, 1874," the latter being the date of the approval of the Revised Statutes of the United States.

The defendant filed a plea to the bill, setting up that the alleged cause of action did not accrue within three years before the filing of the bill (13). The record does not show what action was taken upon this plea, but subsequently a general demurrer was filed (15). This demurrer was overruled by the court, after argument (16). Thereupon the defendant filed a plea averring "that the complainant and patentees had, prior to the alleged infringement, laid their pavement, and the defendant had no notice of the fact that it was infringing the patents, or

either of them" (16). After argument the court below overruled this plea without prejudice to the right of the defendant to make the same defense in its answer (17). Finally, on the 1st of April, 1885, the defendant filed an answer to the bill (18). The answer admits (expressly) only the averments of the bill relating to the residence of the complainant and as to the defendant being a body corporate for municipal purposes under the laws of the United States. It says that it is not informed as to the facts set out in the bill relating to the issuing of the patents therein mentioned, and as to the assignments under which the complainant claims. The answer contains what the appellee will probably claim to be a denial of the alleged infringement, and then alleges that the substantial claims of the complainant's patents were covered by previous patents mentioned, and avers that wooden pavements in all substantial particulars identical with those described in said letters patent had been laid and used more than two years before the patents were applied for by certain cities which are named. The next allegation of the answer is an averment that the complainant and his assignors were present in the District of Columbia when the pavements in question were laid, but that neither he nor they gave the District notice that it was violating his rights or infringing his patents. The answer concludes by averring that the alleged invention is neither new nor useful, and that the matters and things "set up in the complainant's declaration, and of which the complainant complains, are barred by the statute of limitations."

Issue was duly joined on this answer (19).

The case was referred to an examiner to take evidence on behalf of both parties, and the complainant offered evidence tending to prove all the averments of his bill of complaint. The patents (66 to 77) and assignments (72 to 78) relied upon in the bill were put in evidence. The

defendant took evidence in support of all the averments of the answer, except the averment relating to the prior use of wood pavements in Chicago and other cities named in the answer. During the taking of the testimony before the examiner the defendant, by leave of court, amended its answer by referring to a number of other patents as anticipating the inventions relied upon by the complainant (216).

The case came on for final hearing in the court below before Mr. Justice Cox, who, after argument, rendered a decree dismissing the bill of complaint (217). A copy of the opinion delivered by Judge Cox is appended to this brief. The complainant appealed to the court in general term (217). That court affirmed the decree of the court in special term (218), for the reasons stated in the opinion delivered by Mr. Justice Cox in the court below (3 Mackey, 502). Thereupon the complainant appealed to this court and duly perfected his appeal (219, 220).

Assignments of Error.

The court below erred—

I. In holding that the patent No. 101,590, which was issued to Tallmadge E. Brown, as assignor of the inventor, Turner Cowing, on the 5th day of April, 1870, for a new mode of constructing wood pavements for streets, was anticipated by the English patent No. 5185, issued June 14, 1825, to John Lindsay.

II. In holding that said patent No. 101,590 is invalid.

III. In holding that the evidence does not establish an infringement by the District of Columbia of the patent No. 94,063, issued to William W. Ballard on the 24th day of August, 1869, for a new and useful improvement in cutting blocks for wooden pavements.

IV. In holding that the patent No. 94,062, issued to William W. Ballard August 24, 1869, is for an invention which is not useful.

V. In holding that said patent No. 94,062 is invalid.

VI. In failing to decide that the evidence in this case establishes the infringement by the appellee of each of the said patents No. 101,590, No. 94,062, and No. 94,063.

VII. In dismissing the bill of complaint.

VIII. In refusing to make a decree against the defendant below for an injunction and an account in respect of its infringement of each of said patents No. 101,590, No. 94,062, and No. 94,063.

ARGUMENT.

The several questions involved in the case will be considered in this brief in what seems to be their proper order, and not in the order in which they are stated in the answer.

I.

Questions Applicable to All the Patents Sued On.

FIRST.—THE STATUTE OF LIMITATIONS.

The statute relied upon by the defendant is the Maryland act of 1715, Chapter XXIII, section 2 (Kilty's Statutes), which is in force in this District by virtue of the act of Congress of February 27, 1801 (2 Statutes 103, 104). The section of the act of 1801 referred to is incorporated in the Revised Statutes of the District of Columbia, section 82. The Maryland act of 1715 provides, among other things, that all actions on the case shall be brought within

three years ensuing such cause of action, and not after. The act does not apply to suits in equity, and there is no statute of limitations in force in this District which relates to proceedings in equity.

There are two reasons why the Maryland statute would not affect this case, even if it were an action at law:

1. Local statutes of limitation do not apply to suits brought to recover damages for the infringement of letters patent of the United States.

Parker *vs.* Halleck, 2 Fish. Pat. Cas., 543 (Mr. Justice Grier, 1857).

Collins *vs.* Peebles, 2 Fish. Pat. Cas., 541 (Mr. Justice Swayne, 1865).

Read *vs.* Miller, 2 Biss., 12 (Judge McDonald, 1867).

Wood *vs.* Cleveland Rolling-Mills, 4 Fish. Pat. Cas., 550 (Mr. Justice Swayne and Judge Sherman, 1871).

Wetherell *vs.* New Jersey, 1 Ban. & A., 105 (Judge McKennon, 1874).

Anthony *vs.* Carroll, 2 Ban. & A., 195 (Judge Shepley, 1875).

Sayles *vs.* Lake Shore Railroad Company, 9 Fed. R., 515 (Mr. Justice Harlan, 1879).

Sayles *vs.* Dubuque and Sioux County Railroad Company, 9 Fed. R., 516 (Judges Dillon and Love, 1879).

Hayward *vs.* St. Louis, 11 Fed. R., 427 (Judge Treat, 1882).

May *vs.* County of Fond du Lac, 27 Fed. R., 691 (Judge Dyer, 1886).

May *vs.* Logan County Com'rs, 30 Fed. R., 250 (Judge Jackson, 1887).

May *vs.* Ralls County, 31 Fed. R., 473 (Judge Thayer, 1887).

2. This case is governed by the act of Congress relating to suits of this character which provides that such actions may be brought at any time within six years after the expiration of the patent infringed.

The statute governing this subject is section 55 of the act of July 8, 1870 (16 Statutes, 206), which is in the following words:

"That all actions, suits, controversies, and cases arising under the patent laws of the United States shall be originally cognizable, as well in equity as in law, by the circuit courts of the United States or any district court having the powers and jurisdiction of a circuit court, or by the Supreme Court of the District of Columbia or of any Territory; and the court shall have power, upon bill in equity filed by any party aggrieved, to grant injunctions according to the course and principles of courts of equity to prevent the violation of any right secured by patent on such terms as the court may deem reasonable; and upon a decree being rendered in any such case for an infringement, the *claimant* [complainant] shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby, and the court shall assess the same or cause the same to be assessed under its direction, and the court shall have the same powers to increase the same in its discretion that are given by this act to increase the damages found by verdicts in actions upon the case; *but all actions shall be brought during the term for which the letters patent shall be granted or extended, or within six years after the expiration thereof.*"

The substance of the foregoing section is incorporated in section 4921 of the Revised Statutes, except the final clause relating to the time within which suits for infringement may be brought, which is omitted from the revision altogether; but section 5599 provides as follows:

"All acts of limitation, whether applicable to civil causes and proceedings or to the prosecution of offenses, or for the recovery of penalties or forfeitures, embraced in said revision and covered by said repeal, shall not be affected thereby, but all suits, proceedings or prosecutions, whether civil or criminal, for causes arising or acts done or committed prior to said repeal, may be commenced and prosecuted within the same time as if said repeal had not been made."

(See also section 5597.)

The effect of this provision would seem to be too clear for argument. It has been construed by this court. In the case of Root *vs.* Lake Shore and Michigan Southern Railroad (105 U. S., 189) the bill was filed in December, 1878, in the circuit court of the United States for the northern district of Illinois. It was a suit to recover for alleged infringements extending from August 6, 1869, to July 6, 1873. There was a demurrer to the bill in which the defendant, among other things, set up that the suit was barred both by the above-cited section 55 of the act of 1870 and by the local statute of limitations. The demurrer also raised the question of the jurisdiction in equity in such cases after the patent has expired, and upon the latter ground, apparently, the demurrer was sustained in the circuit court and the bill dismissed. When the case was argued here the authorities upon the question of the application of a State statute of limitations and the question as to the effect of section 55 of the act of 1870 were very fully presented in the briefs of the respective counsel. (See brief of Mr. Albert H. Walker, for appellant, pages 63 to 79, and brief of Mr. George Payson, for appellee, pages 31 to 38.)

Mr. Justice Matthews, in rendering the opinion of the court in that case, after quoting section 55 of the act of 1870, says:

"These provisions are substantially carried into the Revised Statutes, section 59 of the act of 1870 being section 4919 of the latter, and section 55 corresponding to section 4921, Revised Statutes, except as to the provision in respect to the limitation upon the right to sue, which is not found in the Revised Statutes. But the rights of the parties in the present suit arose while the act of 1870 was in force, and are determinable under it."

In the case of Root *vs.* Railway Company the infringement was alleged to have occurred between August, 1869, and July 6, 1873, and the bill was not filed until December 9, 1878. In the present case the infringement is alleged to have begun in 1870 and to have continued until June 22, 1874, and the bill was filed April 14, 1880. In the former case the patent sued on had expired long before the bill was filed, and the bill was for that reason dismissed. In this case the bill was filed five years before any of the patents sued on had expired. Indeed, each of the three patents sued on in this case has expired since this appeal was taken.

This precise question was also decided by Judge McKennon in favor of the complainant in the case of Ballard *vs.* Pittsburgh (12 Fed. Rep., 783), in a suit against the city of Pittsburgh for infringing the identical patents described in the bill in this case. To the same effect is Vaughn *vs.* Railway Company (11 O. G., 789), decided by Judge Brown in 1877, and May *vs.* Logan County, 30 Fed. Rep., 250, decided by Judge Jackson in 1887.

SECOND.—AS TO THE ALLEGATION THAT THE DEFENDANT HAD NO NOTICE.

The averment of the answer on this subject (18) is in the following words:

"And that the said complainant and his assignors were present in said District while these pavements for which

he claims damages were being laid, and knew of the fact that the District was contracting to have them laid under the various patents for wooden pavements that were used, and that neither he nor they ever in any manner informed or notified the said District that in making said contracts and in laying said pavements it was violating his rights or infringing his patents, nor did the complainant or his assignors ever give, as required by law, sufficient notice to the public or to this defendant that his alleged invention was patented."

If all that is stated in this paragraph were true, it would be no defense to this suit. The patents themselves are notice to everybody. (Boyden *vs.* Burke, 14 How., 575.)

The only difference between an infringer who is such innocently—that is, without actual notice of the patent—and a malicious infringer—that is, one who has notice—is in the measure of damages. (Emerson *vs.* Simms, 6 Fish. Pat. Cas., 285. And see Nat. Car-Brake Shoe Company *vs.* Terre Haute Car Manufacturing Company, 19 Fed. Rep., 514; New York Pharmical Association *vs.* Tilden, 14 Fed. Rep., 740; Walker on Patents, 569.)

Perhaps it was intended to set up a defense under section 4900, R. S. That section is as follows:

"It shall be the duty of all patentees and their assigns and legal representatives, and of all persons making or vending any patented article for or under them, to give sufficient notice to the public that the same is patented, either by fixing thereon the word "patented," together with the day and year the patent was granted, or when, from the character of the article this can not be done, by fixing to it, or to the package wherein one or more of them is inclosed, a label containing the like notice; and in any suit for infringement by the party failing so to mark, no damages shall be recovered by the plaintiff, except on proof that the defendant was duly notified of the infringement, and continued, after such notice, to make, use, or vend the article so patented."

The essence of this section is that a patentee who *misleads* the public by making or vending a patented article without either affixing the word "patented" on the article itself or on the package in which it is inclosed can not recover against an infringer without proving notice. But the paragraph in the answer just quoted contains no averment and contains no implication that the complainant or his assignors had ever made or vended the pavements patented prior to the commission of the alleged infringement.

Moreover, it is evident that section 4900 can not be applied to a case like the present. That section refers to any patented "article." A pavement can not be called an article, and much less can a method of making blocks for pavements.

It would be impossible to label a wooden pavement so as to give any information to the public. In the case of the Cowing patent, for instance, which is for the pavement, and not for the block, the word "patented," under the section, if applied to such a case, would have to be affixed but once on an entire street. And if affixed anywhere except on the top of one of the blocks, it would be invisible to the public, even when first placed there; and if affixed to the top of a block, it would become invisible or illegible by a single day's use.

However, although the defendant offered no evidence whatever in support of this paragraph of its answer, the complainant proved actual notice (Brown, 22 to 26; Ballard, 28 to 32; and see notice on page 81). The defendant offered no evidence in reply.

THIRD.—THE QUESTION OF INFRINGEMENT.

We contend that the answer, in effect, admits the infringement. The averment of the answer in this regard is as follows:

"For answer to the tenth paragraph of said bill, this defendant says that no pavements were laid down within the District of Columbia under the patents named in said bill, to the best of its knowledge and belief; that none of the contracts made by the Board of Public Works of the District of Columbia called for pavements to be laid under said patent. This defendant denies that it in any way violated the rights of the complainant, and says that it is not indebted in any manner to said complainant on account of his said alleged patents."

The last sentence of this paragraph is clearly a mere statement of a legal conclusion, and might just as well be construed to refer to any other defense as the defense of non-infringement. The preceding sentence simply denies that the pavements were laid *under the patents*. The averment of the bill is that pavements were laid by the defendant "substantially like those described in and covered by said letters patent." To say in reply to this averment that pavements were not laid under the patents is by implication and effect an admission that they were laid, and that this was done without the sanction of the owner of the patents. (Agawam Woolen Company *vs.* Jordan, 7 Wall., 583; and see Gear *vs.* Fitch, 3 Ban. & A., 573, Judge Lowell.)

But whether admitted or not, the evidence of infringement is complete (Daniel N. Row, 36 to 41; John S. Baldwin, 41 to 47; Exhibit I, 79). The pavements were laid by contractors in the employ of the Board of Public Works. The District authorities superintended the work as it went on, and directed it (Baldwin, 43).

The Board of Public Works was created by the act of February 21, 1871 (16 Statutes, 426). That portion of the act in question which related to the Board of Public Works was carried into the Revised Statutes of the District of Columbia as sections 74 to 84, inclusive. The liability of the District of Columbia for the acts of the

Board of Public Works was established by this court in the case of Barnes *vs.* District of Columbia (91 U. S. 540), decided in the October term of 1875. Notwithstanding this, we are advised by the counsel for the appellee that he will raise the question anew in this case.

The case of Barnes was a test case—a test of the liability of the District of Columbia not only for the acts of the Board of Public Works, but for the acts of other co-ordinate bodies created by the same law. The decision in the Barnes case has been applied without question to a multitude of cases that have arisen in the Supreme Court of the District of Columbia and the Court of Claims since 1875, many of which have come to this court on appeal or writ of error, and it is believed that in none of them has any question been raised as to the responsibility of the District of Columbia for the acts of the Board of Public Works. (See on this subject Neuchatel *vs.* District of Columbia, 17 Ct. of Cl., 396; Donovan *vs.* United States, 21 Ct. of Cl., 122; Cluss *vs.* District of Columbia, 2 MacArthur, 493; Roderick *vs.* District of Columbia, 3 MacArthur, 595; District of Columbia *vs.* Gaslight Company, 3 Mackey, 347, 348.)

The Board of Public Works and the entire scheme of the government of the District of Columbia which was created by the act of February 21, 1871, were abolished by the act of June 20, 1874 (18 Statutes, 116; Rich. Supp., 53). The same act created a Board of Audit, with power to audit for settlement all the unfunded or floating debt of the District of Columbia and of the Board of Public Works. That act provided for a temporary government of the District of Columbia by Commissioners. On the 11th of June, 1878, another act was passed establishing a permanent form of government for the District by three Commissioners (20 Statutes, 102; Rich. Supp., 339). By section 3 of the last-mentioned act Congress provided that

the United States should pay one-half of the regular expenses of the District. On the 16th of June, 1880, another act of Congress was approved by which the jurisdiction of the Court of Claims was extended "to all claims against the District of Columbia arising out of contracts made by the late Board of Public Works, and extensions thereof made by the Commissioners of the District of Columbia." (21 Statutes, 284; Rich. Supp., 562.)

Under the decisions cited, and by virtue of these acts of Congress, the decision of this court in Barnes *vs.* District of Columbia has been applied to nearly all of the great mass of liabilities arising out of the acts of the Board of Public Works. The District has been held liable for those obligations and the United States has paid one-half the amount thereof. We can not believe that at this late day this court will entertain an argument as to the correctness of the decision in Barnes *vs.* District of Columbia.

FOURTH.—AS TO PRIOR USE.

Section 4920 of the Revised Statutes requires that, where the defense of prior use is relied upon in a suit at law or in equity for an alleged infringement, the defendant shall state where and by whom the invention had been used. The only attempt in the answer to comply with this requirement is the averment that more than two years before the patents in suit were applied for wooden pavements substantially like those described in the patents had been laid and used by the cities of Chicago, St. Louis, Cincinnati, Cleveland, Buffalo, New York, and Boston (18). Not a word of evidence was offered in support of even this wholly inadequate allegation.

The testimony of N. C. Draper (112 to 122) as to the prior use of the method covered by the patent No. 94,063 was incompetent for the purpose of invalidating that patent because it was not set up in the answer. And

even if competent, such a vague and uncorroborated account of an old transaction falls far short of complying with the rule that prior use must be proved beyond a reasonable doubt. And when we find that Draper had concealed the fact that Mr. Henry S. Davis, who was living in Washington when Draper testified, was his partner at the time of the transaction referred to, and that Mr. Davis was the only living person connected with the transaction who could be found, his testimony becomes wholly valueless. (See Mr. Davis's testimony in rebuttal, 209, 213.)

II.

Defenses Applicable to Particular Patents.

FIRST.—AS TO THE COWING PATENT NO. 101,590.

The position taken by the appellee as to this patent requires an inquiry into its history. The complainant having offered in evidence the patent only, the defendant put in evidence the file wrapper and contents. (See Defendant's Exhibit D. C. No. 5, 138 to 148.) The original application was filed October 13, 1865. In the specification then filed Cowing described a pavement composed of wooden blocks, having one inclined side, placed upon the street side by side in such a manner that the space between the inclined side of one block and the perpendicular side of its neighbor would form a wedge-shaped crevice, which was to be filled with earth or gravel, the earth or gravel to be rammed into the crevices, and "to act as a key to bind and confine the blocks in their place" (139). On December 27, 1865, the application was rejected (140). On May 5, 1869, Cowing amended his application by inserting a clause to the effect that the gravel spaces in question should extend across the

direction of the street or road (141). The drawing appended to the original application (opposite page 148) indicated that the blocks were to be so laid, but the specification contained no explicit statement in that regard. At the same time the claim was amended so as to claim a pavement composed of the described blocks, instead of the use and application of the blocks for paving, as in the original patent (140, 142). On August 17, 1869, Cowing was notified that his application was regarded as abandoned, and could not, therefore, be considered by the Office (142). On the 26th of December following Cowing requested the Patent Office to have the examiner reexamine his application as amended, and referred to papers which he filed on the 15th day of December, 1869, showing that during the interval between the rejection of his original application and the filing of the amendment he (Cowing) had been in a state of mind bordering upon insanity (143, 144). On the 25th of November, 1869, the examiner declined to reopen the case, saying that the statements submitted by the applicant did not satisfactorily account for his laches, and that in the mean time the device had been embodied in subsequent patents—that of Miller and Mason, March 31, 1868 (149), and that of Ballard and Waddell, August 24, 1869 (145), the latter being one of the patents involved in this suit. On the 22d of February, 1870, the inventor amended his specification by adding figures 5 and 6 to the drawing, and by inserting the paragraph found in the patent as finally issued, which describes a block with two inclined faces, instead of one (145, 146). In the same paper he asked a reconsideration of the case, and he filed with the application the affidavit of two practicing physicians of San Francisco corroborating the evidence previously filed by him as to his abnormal mental condition between May, 1866, and the spring of 1869 (145, 146). The Commis-

sioner indorsed upon this application: "This amendment may be considered" (146). The date of this indorsement does not appear, but it must have been subsequent to the 24th of February, 1870, for on that day the examiner had again rejected the application to have the case reopened (146, 147). On the 21st of March, 1870, the inventor filed another amendment (147, 148), which was accepted and the patent issued. By this last amendment Cowing disclaimed "a wood pavement composed of wedge-shaped blocks when the blocks are laid alternately on the larger and smaller ends, so as to form a continuous surface of wood," and amended his claim so that it would read "a wood pavement composed of blocks, each side having a single plane surface, and *one or more* of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth."

The patent in its final form appears twice in the record (4, 66). The drawing accompanying the patent will be found opposite page 148.

Three objections seem to be made by the counsel for the appellee which relate particularly to the Cowing patent, and these are:

1. That the invention was abandoned to the public after the original application was filed;

2. That it is invalid because the amendment made in 1870 included matters not covered by the original application; and

3. That it was anticipated by patents which antedate Cowing's original application.

1.—AS TO THE DEFENSE OF ABANDONMENT.

As has been seen, Cowing's original application was rejected December 27, 1865. A re-examination was not asked for at that time, nor does any further step appear to have been taken in the matter until the 5th day of May, 1869, when he first amended his specification and claim. The Office seems not to have replied to this communication from Cowing until August 17, 1869, when it informed him that his application was regarded as abandoned (142). From that time on the record shows that Cowing used due diligence to overcome the objections that had been made to his application for a patent, so that the period upon which the claim of abandonment must be sustained, if sustained at all, is the period of three years four months and eight days between December 27, 1865, and May 5, 1869.

A fatal defect in the case of the appellee on this point is that the answer does not aver that this invention had been abandoned. This is one of the defenses which must be specifically set up, even in a suit at law, under section 4920, Revised Statutes. (And see Rubber Company *vs.* Goodyear, 9 Wall., 793–801.)

The question of what constitutes an abandonment of an invention has frequently been considered by this court, but never, it is thought, when that defense was not pleaded or, in equity cases, set up in the answer.

And if the defense had been set up, the evidence would not support the averment. There was at the period in question no act of Congress regulating this subject. It seems to have been a rule adopted by the Commissioner of Patents to the effect that two years of unexplained delay after the first rejection of an application for a patent would be deemed evidence of abandonment. This rule was sometimes enforced, and sometimes it was disregarded,

and it was repealed by Commissioner Fisher in 1869, before the Cowing patent was issued. (Planing Machine Company *vs.* Keith, 101 U. S., 488; Cochrane's case, Commissioners' Dec., 1869.)

In the present case the record contains no evidence bearing upon the question of abandonment, except the contents of the file wrapper in patent No. 101,590. These papers were competent evidence to show the true construction of the Cowing patent; so that not only is this defense not set up in the answer, but the complainant had no reason to suppose it would be made until the evidence was closed and the case came on for final hearing in the court below. But the contents of the file wrapper show affirmatively that about the time his original application was rejected Cowing lost his wife and his property; that he became afflicted with the delusion that his wife had been poisoned and that his property had been taken from him by foul means; so that he neglected his affairs and brooded over his misfortunes for several years, and was during that period generally incapacitated for business by reason of this abnormal mental condition (144, 145).

The three leading cases in this court in which the subject of abandonment has arisen in connection with delay between the time of the rejection of the original application for a patent and the subsequent renewal of efforts to obtain a patent are Smith *vs.* Goodyear Rubber Company, 93 U. S., 496; Woodbury Planing Machine Company *vs.* Keith, 101 U. S., 488; and United States Rifle and Cartridge Company *vs.* Whitney Arms Company, 118 U. S., 22.

In the first-mentioned case the patent was sustained, although there had been in that case a delay of eight years. Three members of the court, however, dissented from that opinion on the ground of abandonment. In the case of Woodbury Planing Machine Company *vs.* Keith the patent was held invalid, there having been a

delay of more than sixteen years; and in the case of United States Rifle and Cartridge Company *vs.* Whitney Arms Company the patent was held invalid on the ground of abandonment, there having been a period of inaction lasting eight years. In each of the above cases the defense of abandonment was set up in the answer. In each of them the applicant had abandoned his original application, either expressly or by implication, and had proceeded by a new and independent application. In each of them the evidence established the fact that the device patented had gone into general use with the knowledge of the applicant many years before he filed his renewed and successful application.

In the present case no notice is given of this defense; Cowing never withdrew his application or took back any part of the fee which he had paid; and there is not a particle of evidence tending to show that a pavement like that covered by his patent had ever been laid by anybody anywhere before his patent was issued, much less that Cowing had knowledge of any such use.

This defense was relied upon in the cases already referred to involving Cowing's patent, and Judge McKennon, upon the same evidence, held the patent to be valid. (Ballard *vs.* City of Pittsburgh, 12 Federal Reporter, 783.)

2.—AS TO THE CLAIM THAT COWING'S PATENT IS INVALID BECAUSE THE AMENDMENT MADE IN 1870 INCLUDED MATTERS NOT COVERED BY THE ORIGINAL APPLICATION.

This objection grows out of the fact that in 1870 Cowing added figures 5 and 6 to the drawing annexed to his application, and added to the specification (145) the following paragraph:

"It is obvious that the wedge-shaped crevices may also be formed by setting the above-described blocks so that

two vertical sides and two inclined sides come together alternately, as shown in Fig. 5; and it is equally obvious that two blocks having their vertical sides together may be replaced by a single block having two inclined faces, as shown in Fig. 6, without any material change of plan, and with a considerable saving of labor and expense in the construction."

And also out of the fact that in 1870 he amended the original claim, which is in these words:

"The use and application of the above-described blocks for paving streets when constructed with one inclined side so as to form the wedge-shaped crevice, substantially as above described,"

so that it would read as follows:

"I do not claim a wood pavement composed of wedge-shaped blocks when the blocks are laid alternately on the larger and smaller ends, so as to form a continuous surface of wood; but—

"What I do claim, and desire to secure by letters patent of the United States, is—

"A wood pavement composed of blocks, each side having a single plane surface, and one *or more* of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth" (140, 147, 148).

This defense, like that relating to the abandonment by Cowing of his invention, is one that is not set up or referred to in the answer, and that alone is a sufficient reply to it. (Walker on Patents, 440, 450, 603; Rubber Company *vs.* Goodyear, 9 Wall., 793.)

But aside from this, there is no merit in the objection, because the patent as finally allowed includes nothing which is not substantially disclosed in the original specification. The only real difference between the two is that

in the original application Cowing describes a pavement composed of blocks which are beveled on one side only, while in the specification as amended, as has been seen, he describes a pavement composed of blocks beveled on both sides. [The words "or more" in the claim must be read *or both*, as appears from the provision that the crevices shall run across the street, and, indeed, from the whole tenor of the specification, as well as from the drawings.] The effect of this difference is solely that the crevice between the blocks may be made up by removing a portion of the block on each side of it, instead of by taking a part of but one block. It required no invention to perceive this. The pavement remains the same as to block, crevice, and filling, the only difference being that the crevice is larger in the one case than in the other.

3.—AS TO THE CLAIM THAT THE COWING PATENT WAS ANTICIPATED BY PRIOR PATENTS.

In the original answer in this case (18) and in the amendments subsequently filed (216) a large number of patents are referred to as covering "all the substantial claims of the complainant's alleged patents." The answer does not inform the court which of these patents are relied upon to meet the Cowing patent. But in the argument of the case below it has been ascertained that of the patents which were offered in evidence on behalf of the defendant in this case but three are relied upon as indicating that the Cowing invention had been anticipated. The first of these is the well-known Nicholson patent, and is Defendant's Exhibit D. C. No. 7 (152 to 156). The question of the validity of the Nicholson patent was before this court in the October term, 1877, and it was sustained in an elaborate opinion delivered by Mr. Justice Bradley (97 U. S., 127). The patent and the opinion in question describe

the Nicholson patent as an invention for a combination, first, of a foundation of wooden boards prepared to exclude moisture from beneath; second, rectangular blocks laid on this foundation; third, wooden blocks or strips between these first-mentioned blocks to keep them at a uniform distance from each other, and to create a space to be filled with gravel and tar; and, fourth, the filling. That this patent does not by itself anticipate Cowing requires no argument. It is upon the English patents of Chambers and Lindsay mainly that the defendant relies in this case, and it was upon the Lindsay patent, and it alone, that the court below decided this case as to the Cowing patent in favor of the defendant.

The Chambers patent is Defendant's Exhibit D. C. 10 (168, 170. The drawing is opposite page 171). This patent was issued and enrolled in 1824.

Chambers starts out by declaring that the nature of his invention consists "in an arrangement of conical-formed stones or other hard mineral or silicious substances of the said form, placed on their natural bases, cemented together at their lower extremities and having their remaining interstices filled with loose materials insoluble in water" (169). After describing his drawing, he goes on to say:

"Having prepared a foundation or bed in a firm and solid manner, as hereinbefore described, I proceed to cover the same with hard granite or other hard stones, *r r r*, cut in the form represented in the drawing [truncated pyramids] and placed with their large end or natural base downward. I then grout or cement these stones together at their bases by a good strong cement, such as good *Abberthawr* lime with a preparation of the patent English *pozzolane*, or any other cement which will resist the action of water. I propose that the stones should be bedded in this cement to about one-third of their height, as shown by the yellow line in the drawing, which is intended to represent the

cement. The upper part of the interstices that will then be left vacant I propose to fill with finely broken flints, the said patent English *pozzolone* powdered, or any other similar substance not soluble in water" (169, 170).

He then goes on to indicate the real nature of his invention by saying:

"As the cutting of stones of a sufficient hardness for this purpose into this exact shape would be attended with great expense, I propose for all ordinary pavements to make use of stones broken and hewn in the manner in which they are usually prepared for paviours, but taking care in their application to the said improved pavement or carriage-way always to lay their natural bases or largest end downward; and such an improved pavement or carriage-way as aforesaid formed by a series of stones of a conical form placed side by side with the natural base or largest end of each of them turned downward, and with such bases so turned down as aforesaid, cemented together as aforesaid, and with the upper part of the immediate spaces or interstices aforesaid filled with powdered or finely broken matter not soluble in water as aforesaid, being to the best of my knowledge and belief entirely new and never before used in these kingdoms, I do hereby declare," etc. (170).

The Lindsay patent is Defendant's Exhibit D. C. No. 9 (163 to 167. Drawing opposite page 167). It is a patent for a street pavement to be so constructed that the wheels of vehicles shall run on a certain part of the street, and that the horses shall travel on another. Thus Lindsay prefaces his description of his patent by saying:

"I shall here observe that the great desire that prevails at present for covering or constructing streets and roads with broken granite or other hard and durable stones may be productive of much service to the public when judiciously applied, and more particularly so when combined with certain portions of pavement so placed as to bear the weight of carriages and receive the action of the

wheels, which has hitherto been found so destructive to streets or roads covered with broken stones only" (164).

Then, referring to figure 1 of his drawing, he describes, first, the granite or other hard stones which he provides for the wheels of carriages. Next, in speaking of those portions of the pavement which are between the rows of stones for carriage wheels, he says that he proposes to use the common or the usual-sized stones, but that—

"Instead of laying them with their broadest ends upward, I lay them with their broadest ends downward; and as each stone is made of a wedge form, this leaves a considerable space open between the stones. These I close with small stones of a wedge form, which, being carefully placed and well rammed down, after a sufficient quantity of fine gravel or grout has been worked between them, will make a pavement nearly as substantial as a solid sheet of granite, well suited to enable horses to travel on safely, while the lines of large transverse stones will form a surface to receive the action of the wheels, and be nearly equal in point of smoothness to a well-formed railway. * * * By placing or arranging the stones in the way herein described a great quantity of the small wedge-formed pieces or chips of granite usually produced in working a quarry will be brought into use and essentially contribute to render pavement with the common stones much more permanent and effective than any method heretofore known or made use of" (164, 165).

He goes on to describe the manner of making a turnpike or other road after his manner, but there is nothing materially different in this portion of his specification from the preceding part thereof, which seems to refer more particularly to the paving of streets in cities. The rest of the specification relates to a railway which Lindsay proposed to lay on streets.

Coming to the claims of the Lindsay patent (167), we find that of his four claims the third and fourth relate to his railway. The first and second claims are as follows:

"I hereby further declare that my improvement consists—

"Firstly, in constructing wheel tracks for carriages on streets or roads with curbing stones laid transversely.

"Secondly, I do not claim the sole right to pave with stones having their broadest ends laid downward."

In comparing these two English patents with the Cowing patent we start with what has become a maxim in the patent law, and which is thus applied by this court in Elizabeth *vs.* Pavement Company:

"Though it may be true that every one of these elements had been employed before in one kind of pavement or another, yet *they had never been used in the same combination and put together in the same manner* as Nicholson combined and arranged them, *so as to make a pavement like his.*" (97 U. S., 129, 130.)

In that case, after discussing the patents which were set up to defeat Nicholson, this court adds:

"None of these pavements combine all the elements of Nicholson's, much less *a combination of those elements arranged and disposed* according to his plan."

The Cowing patent is not, as counsel for the defendant and the court below apparently have insisted, a patent for a paving block of a certain form, but it is a patent for a *pavement* composed of a combination of a block of a certain shape laid in a certain manner with a filling of earth or gravel. The Cowing patent requires that the blocks shall be laid upon their larger ends, and it expressly provides that "the blocks should, of course, be placed so that the gravel spaces may extend lengthwise across the direction of the street or road" (4).

The Chambers patent (assuming that it is really a patent for a pavement composed of stones in the form of a

regular truncated pyramid) describes blocks having crevices on all sides, so that it is impossible under that patent to construct a pavement which will not have crevices running in the direction of the street—a most material defect, for the obvious reason that the wheels of vehicles would work into such crevices and destroy the pavement. Then, in the next place, Chambers insists throughout his specifications that the blocks of which his pavement is composed shall be fastened together with cement or mortar which will resist the action of water, and he carefully prescribes that the stones shall be bedded in this cement to about one-third of their height. The upper part of the spaces is not to be filled under the Chambers patent with either earth or gravel or cement. He describes as his filling finely broken flints with a substance called "pozzolana." [This word is defined thus in Webster's Dictionary: "Volcanic ashes from Pozzuoli, in Italy, used in the manufacture of a kind of mortar which hardens under water."]

The patent of Lindsay is still wider of the mark. Even assuming his patent to represent a pavement the horseway of which is composed of blocks in the shape of regular truncated wedges, yet he indicates by his drawings (opposite page 167) that these stones are to be so laid that the crevices between them shall run lengthwise of the street, and not across it, as in the Cowing patent. This plainly appears upon figure 1 of the drawing, and figure 2 must be looked at recollecting that, as stated in the specification, it "represents a transverse section of the street or road" (165). If such blocks were so laid with any ordinary filling, the wheels of vehicles would work into the crevices and the pavement would be ruined in a short time. To obviate this difficulty Lindsay provides lines of large, broad stones upon which the wheels of vehicles are to run, and further provides that the crevices

shall be filled with *stone wedges carefully placed and well rammed down.* He does, indeed, say that this shall be done after a sufficient quantity of fine gravel or grout has been worked between "the wedges which are to be rammed down," but it is the wedges, and not the gravel or grout (mortar), upon which he mainly relies to fill up the crevices, and he says expressly that his process will make a pavement nearly as substantial as a solid sheet of granite (165).

Both Chambers and Lindsay describe stone blocks, while Cowing's is a wood pavement. The opinion of Mr. Justice Cox, adopted by the court below, assumes that this court has decided "that the substitution by Cowing of a new material in a known device or arrangement" would not be a patentable novelty. Now, while we think it is wholly unnecessary for us to claim that the mere substitution by Cowing of wood for stone in the Chambers or Lindsay pavement would entitle him to a patent, yet the decisions of this court do not establish that that alone might not be sufficient to sustain the Cowing patent.

There are three cases in this court upon this subject: Hotchkiss *vs.* Greenwood, 11 How., 248; Hicks *vs.* Kelsey, 18 Wall., 670; and Smith *vs.* Goodyear Dental Vulcanite Company, 93 U. S., 496. The first of these cases is known as the door-knob case, and the second as the wagon-reach case, and in those cases, respectively, it was held by this court that the substitution of porcelain for other materials in the manufacture of door-knobs, and the making of the bend of a wagon-reach of iron alone, instead of iron and wood, are not patentable. But in Smith *vs.* Goodyear the patent was sustained for the use of vulcanized rubber in dental plates in lieu of other substances which had theretofore been used for that purpose. In that case this court refers to several cases which had been decided in the circuit courts sustaining the validity of patents which

substituted one material for another, and the doctrine of those cases was adopted and the patent involved in Smith *vs.* Goodyear Vulcanite Company was sustained. The doctrine of that case and those which it approves is that a mere change of material is patentable when it produces a new and useful result. The new and useful result in the dental-plate case was that artificial teeth can be inserted in the rubber while it is soft, so that when the rubber hardens the teeth and rubber are almost like one substance, and the difficulties which had been found in the use of other materials for such plates growing out of the existence of crevices between the teeth and the material in which they were placed was obviated.

So in Dalton *vs.* Nelson (13 Blatchford, 357) it was held that the substitution of vulcanized rubber for other materials in certain connections was a patentable invention, because its elasticity prevents it from wearing out like leather and other similar substances.

There is a striking analogy between the present case and that of Smith *vs.* Goodyear Dental Vulcanite Company. Gravel and similar substances can not be forced into the stone blocks of the Chambers and Lindsay patents, so as in any degree to unite with the blocks themselves. No matter now hard the gravel might be rammed, it would still be entirely separate from the stone blocks, and would be liable to be forced out in the ordinary use of the street. Hence it is, no doubt, that in neither the Chambers nor the Lindsay patent do we find any provision for the filling of the crevices between the large blocks with gravel, whereas that is the principal substance referred to as filling material in the Cowing patent. In ramming gravel between wooden blocks it of necessity indents the blocks, and the filling must adhere to the blocks much more firmly than would be the case if they were stone.

In the opinion of the court below in this case this argument is met by the statement that Cowing "says nothing about the filling being forced by ramming into the fiber of the wood, as does the witness for the complainant" (referring to the testimony of McIntire, 200, 201); and it is assumed that for this reason in the construction of his patent he is not entitled to the benefit of any superiority which his pavement may have on this account over those of Chambers and Lindsay. But it is a doctrine well settled by the decisions of this court that a patentee is entitled to the benefit of a new result which follows from the invention described in his specification, whether he perceives it or not. (Tucker *vs.* Spalding, 13 Wall, 453; Stow *vs.* Chicago, 104 U. S., 550. See also Woodman *vs.* Stimson, 3 Fisher's Patent Cases, 98, and Graham *vs.* Mason, 5 Fisher's Patent Cases, 1.)

Moreover, it is submitted that when Cowing says in his specification (original and amended) that the crevices are to be filled and rammed with earth and gravel (5), which "will be *returned to act as a key* to bind and confine the blocks in their place" (4), he does with sufficient certainty indicate the very result under consideration.

In what has been said above about the Chambers and Lindsay patents it has been assumed that blocks of a regular shape are a substantial part thereof; but it is obvious that both of those patents propose practically a pavement made of pieces of stone of irregular shape, such as are found in the débris of quarries. No man in his senses would propose to pave a street with stone blocks like those shown in the drawings of Chambers and Lindsay. The expense of preparing such blocks would of itself bar their use. That this was apparent to Chambers and Lindsay is shown by the language of their specifications, and that language demonstrates that the blocks of regular shape shown in their respective patents are placed there

merely in a theoretical and illustrative way, it being easier to convey the idea which they were attempting to embody by the use of straight lines than by drawings showing the blocks of irregular shape, with which they were really dealing. Lindsay, for instance, speaks of the great desire that prevails for covering or constructing streets and roads with broken granite, and refers to that portion of figure 1 of his drawing (opposite page 167) which shows this part of his pavement with regular-shaped stones in these words:

"D D D D represents the intermediate portions of the surface between the lines of stone before named *paved with the common or usual-sized paving stones*" (164).

Both Chambers and Lindsay refer to the usual method of paving streets with such stones as those referred to in their patents—that is, stones of irregular shape. Both say that that method was to lay such stones with the broadest ends upward. Each claims to have discovered an advantage in reversing the stones and placing them with their broadest ends downward. Chambers, who came first, did this in combination with a cement at the lower third of his stones and a filling of flint or a similar substance in the upper two-thirds. Lindsay, being thus anticipated by Chambers in the matter of turning the principal stones upside down, evidently considers that the leading advantage of the horse-way of his pavement over Chambers' is the filling of the crevices with smaller wedges of stone having their broadest ends up. The interstices which would still exist between the large stones of irregular shape lying broad end down and the small wedge-like chips from the quarry driven in between them he proposes to fill with fine gravel or with mortar.

This is all that these patents covered; and thus, properly construed, the fact that neither of them anticipates Cowing becomes too palpable for serious argument.

In the opinion of the court below it is assumed that the proper construction of Cowing's claim is "for a new arrangement of paving blocks of a known shape, without reference to their material." In fact, Cowing's claim is for a wood *pavement* composed of blocks in the form of a truncated wedge laid on their larger ends close together, so that the crevices formed between the blocks will run across the street and having a filling of earth, gravel, or some other similar substance. This is a patent for a combination. And the Lindsay patent is a patent for a combination. If we take the Lindsay patent to refer to regular-shaped blocks, then it must be conceded that it does describe blocks of the same shape as those of Cowing. But they are not laid in the same way. One runs his crevices across the street, the other runs them with the street; and when we come to consider the other parts of the combination in the respective patents we find extreme dissimilarity. One fills the crevices mainly with wedges of solid stone, while the other uses a filling of earth or gravel. Lindsay thus fills his crevices with inverted wedges of the same material as the blocks themselves, while Cowing expressly disclaims a pavement in which the crevices shall be filled with inverted wedges of the same material as the principal blocks.

In the court below counsel for the defendant saw this difficulty, and attempted to evade it by saying that while it is true the filling in the Lindsay patent is unlike that of Cowing, yet that Cowing is anticipated as to filling by the patent of Nicholson. Probably that argument will be urged here. It is only necessary in reply to it to refer to what has already been said as to the decisions of this court, and especially the decision in Elizabeth *vs.* Nicholson Pavement Company, as to the effect of a patent for a combination; and just here lies a mistake which, as we claim, has pervaded the defense in this case

and the rulings of the court below on the merits from the beginning. Lindsay has the Cowing block, but of a different material, differently placed, and in a different combination. Nicholson has the Cowing filling, but has a different block, and uses the filling only in the upper portion of the crevices between the blocks. Admit, then, for argument's sake, that all parts of Cowing's patent are old, yet his combination of them is new. If he did no more than combine the Lindsay block with the Nicholson filling, that would be a new combination, and would entitle him to a patent so far as anything in this record shows; but when, in addition to that, he changed the arrangement of the Lindsay block so as to run the crevices across the street, instead of with it, and left out Lindsay's wedges between the main blocks, and when he got rid of the subsidiary set of blocks in the Nicholson patent used to keep the main blocks apart, he achieved an important and new result; and any reasoning which would invalidate his patent on account of anything set forth in the specifications of Chambers, Lindsay, and Nicholson would destroy every patent, except those which embody fundamental changes in the art to which they pertain. (Elizabeth *vs.* Nicholson Pavement Company, 97 U. S., 126; Loom Company *vs.* Higgins, 105 U. S., 591; Wicke *vs.* Ostrum, 103 U. S., 461.)

In the court below the patents of Chambers and Lindsay have been treated as though they were fundamental, instead of being narrow improvements upon former well-known methods of laying street pavements. This is obviously not the case. It was said by this court in Phillips *vs.* Detroit (111 U. S., 606) that the court is "permitted to consider matters of common knowledge or things in common use," and "the common and well-known method of constructing pavements in use long before the date of the Phillips patent [1871] was to prepare a foun-

dation or bed of gravel or sand, place the blocks, boulders, or bricks of which the pavement was to be made upon this bed, and fill the spaces between them with sand or gravel, or both mixed. Familiar instances of pavements thus made are the cobble-stone pavements usually laid in streets and the brick pavements usually laid upon sidewalks." And both Chambers and Lindsay refer to the previous well-known manner of using blocks such as they describe in their specifications in the construction of street pavements. The principal advantage which Chambers seems to claim in his specification over the prior manner of laying pavements is in laying the blocks with their broad ends up, instead of down. And Lindsay, who came after Chambers, claims as his principal improvement the laying of lines of broad stones in the direction of the length of the street for the wheels of vehicles to pass upon, so that the pavement proper will be reserved for the use of horses alone.

This being so, each of these patents covers only the device described in the specification thereof. (McCormick *vs.* Talcott, 20 Howard, 402; Bridge *vs.* Excelsior Manufacturing Company, 105 U. S., 618; Duff *vs.* Sterling Pump Company, 107 U. S., 636; Blake *vs.* San Francisco, 113 U. S., 679.)

Duff *vs.* Sterling Pump Company is an excellent illustration of this principle. It was there held that a patent for a corrugated washboard the projections of which were bounded by crossing horizontal and vertical grooves did not invalidate a subsequent patent for a corrugated washboard where the projections were produced by intersecting diagonal grooves, it appearing that before either of the inventions in question ~~were~~ made corrugated washboards had been in use.

And to this error was added another by the court below—that of not giving Cowing credit for his *improvement*

upon Chambers and Lindsay and Nicholson, even supposing his patent to cover their claims.

"Letters patent for an improvement on a patented invention can not be declared void because they include such patented invention. Much less does it lie in the mouth of a party who is infringing both the improvement and the original invention to set up the existence of the first patent as an excuse for infringing the improvements. It is only the patentee of the original invention who has a right to complain of the use made of the first invention." (Cantrell *vs.* Wallick, 117 U. S., 694.)

Again, the doctrine that a patent for a combination includes an equivalent of any particular part of the combination is confined to cases in which the equivalent was known at the time of the invention patented. (Gould *vs.* Rees, 15 Wall., 187; Gill *vs.* Wells, 22 Wall., 1; Rowell *vs.* Lindsay, 113 U. S., 97.)

The substitution of one material for another in a combination would seem to come within the reason of this doctrine. And applying the principle to the present case, neither Chambers nor Lindsay can be held to cover the use of wooden blocks, instead of stone blocks, in their respective patents, for the reason that it does not appear that at the time their patents were applied for and enrolled wooden blocks had ever been used in street pavements; and the court will take notice of the fact that the use of such blocks for such a purpose is of comparatively recent date. So far as the record in this case shows, the earliest reference to the use of wood as a material for street paving is contained in the English patent put in evidence by the defendant, No. 8138, granted to Richard Hodson June 27, 1839 (156, 162, drawing No. 7, opposite page 162).

In the case of Elizabeth *vs.* Pavement Company (97 U. S., 126) the history of wood paving seems to have been gone into very thoroughly, and the earliest reference to a

patent for a wood pavement contained in the report of that case is the English patent of David Stead, which was enrolled in November, 1838. So in the above-cited case of Stow *vs.* Chicago, which was a case involving the validity of a patent for a wood pavement, the earliest reference to such a pavement is this same patent of David Stead.

Indeed, it is submitted that a careful examination of all the patents for pavements in evidence in this case, and of those which are described in Elizabeth *vs.* Nicholson Pavement Company and in Stow *vs.* Chicago, will lead to the conclusion that there is more of originality in the Cowing patent than in any of the others, except, perhaps, that of David Stead. In this connection it is not out of place to invite attention to the fact that when the Patent Office rejected Cowing's application in December, 1865, no previous patent or application for a patent was made the foundation of that action. The rejection is placed upon two grounds, which are thus stated:

"You merely reverse the plan usually adopted in the construction of arches and apply the same to the construction of street pavements. The grading of streets being usually crowning or convex, to permit the flow of water, the same results would be obtained as claimed by you in the use of ordinary square blocks laid upon a convex surface, and changes such as you describe are not the subject of letters patent" (140).

This is so manifestly absurd that neither in the subsequent proceedings in the Patent Office in Cowing's case nor during the pendency of this suit has either of these grounds of objection been suggested. After the rejection of Cowing's application and before he renewed his application it seems that every application for a patent for an analogous device was allowed or disallowed as it was found to fall without or within Cowing's specification (147). Nor does it appear that previous

to the actual allowance of his patent in 1870 anybody anticipated him in putting his invention, as described in his amended specification, into practical use. His patent was finally issued on April 5, 1870. Thus, before any harm had been done, the Patent Office "practically acknowledged that the prior rejection had been an error, and declared that in justice to his rights as an inventor" Cowing's claim should be allowed. (See Smith *vs.* Goodyear, 93 U. S., 492.) The first wood pavement laid in accordance with the specification of Cowing's patent, so far as the evidence in this case discloses, was that laid on Pennsylvania avenue, in the city of Washington, from Ninth street west to the Capitol, in the fall of 1870 (42).

For these reasons it is respectfully submitted that the first and second assignments of error should be sustained, and a decree made for an account in respect of the Cowing patent. The patent having expired, of course the remedy by injunction, though prayed for in the bill, is not now available.

II.

Defenses Relating to the Ballard and Waddell Patents, Nos. 94,062 and 94,063.

These patents are considered together because one (No. 94,063) relates to the method of making the block therein mentioned, and the other (No. 94,062) is a patent for the block made by this method and for a pavement composed of such blocks.

Cowing, in his specification, makes no reference to any particular method by which the blocks included in his patent are to be made.

The first reference we have in the documentary evidence in the case to any particular method of producing such

blocks is contained in Defendant's Exhibit D. C. 6 (149), being the patent No. 76,227, granted to Miller and Mason March 31, 1868. In the specification of that patent (151) occurs this sentence:

"Blocks can be cut with less waste of material by cutting them from timber and splitting the timber and blocks with the proper bevel."

This is very indefinite. Probably it means what is illustrated by figure 1 of Complainant's Exhibit Z (82). That this or some similar method is that suggested by Miller and Mason is shown by the fact that Miller and Mason say, in so many words, that their blocks "are of the usual size, having the fiber vertical" (150). Such a block it is impossible to make by the method of Ballard and Waddell. This will appear from the description of that method given in the patent itself, No. 94,063 (77, and see diagram opposite page 76). Certainly, it is impossible for anybody to say that the above-quoted sentence from the specification of Miller and Mason clearly indicates the method included in patent No. 94,063, and that is all that is necessary for the purposes of this case.

A number of other patents are set up in the answer, and some of them are introduced in evidence by the defendant, to show anticipation of the Ballard and Waddell method of making the Cowing pavement block. It is unnecessary to refer to them in detail, for there is not one of them which approaches a description of this method. With one exception, they all relate to various contrivances for presenting material to a saw at any desired angle, whereas the substance of the Ballard and Waddell method is not in the machinery by which the plank or timber is brought to the saws, but in the direction and sequence of the successive cuts. It is as though Ballard and Waddell had taken a plank and marked upon it the lines which

the saws were to follow. The particular machinery which shall be used in bringing the plank to the saws for the purpose of having cuts made upon the lines thus marked is a secondary matter, and is, indeed, so far as the essence of the patent is concerned, of no consequence whatever.

The exception just mentioned refers to the patent of Henry Millenger, No. 42,212, dated April 5, 1864 (185 to 188, and see drawing opposite page 188). This patent is for a method of making siding for frame houses by grooving the board or plank on each side, and then slitting it with a saw obliquely between the grooves. The want of similarity between this invention and that of Ballard and Waddell is obvious.

The attempt to show prior use of the Ballard and Waddell method by N. C. Draper has already been considered.

As to patent No. 94,062 (69 to 72, and see drawing opposite page 70), the defendant assails it as being without utility, and on that ground alone the court below held this patent to be invalid. The only improvement claimed for the block described in this patent over the block used in the pavements previously patented by Cowing and by Miller and Mason is that it is made of wedge-shaped blocks having the grain running parallel to one and oblique to the other of the beveled sides. The first claim of the patent is for the block itself, and the second for a pavement composed of such blocks (72).

It is doubtful whether there is anything contained in the answer in this case which enables the defendant to make this point. The answer says that "the alleged patents are null and void for the reason that the alleged invention is neither new nor useful" (18, 19). As there are three patents and three separate inventions sued upon, it is impossible to say which one is referred to in the averment that the *invention is* not useful.

But the patent is *prima facie* evidence of the utility of the invention which it covers. (Lehnbeuter *vs.* Holthaus, 105 U. S., 94.) And the fact that the defendant has used this invention is sufficient to establish the utility of the thing patented as against him. (Lehnbeuter *vs.* Holthaus, 105 U. S., 94; Whitney *vs.* Mowry, 4 Fish. Pat. Cas., 207.)

In the patent itself it is claimed that blocks of the kind described possess two advantages over others: that they are less liable to fracture in the handling, and that they facilitate the introduction of the filling into the lower and narrow portion of the wedge-formed crevices between the blocks. What is the extent of these advantages and how much the defendant was benefited and the complainant damaged by the defendant's use of these blocks, as distinguished from similar blocks with vertical fiber, is a subject for future consideration under a decree for an account.

The only evidence of want of utility is that furnished by the deductive reasoning of the expert for the defense, Mr. Robertson (88, 89). Even if it were competent to prove want of utility in this way in any case, such testimony is of no weight as against the presumptions just stated, re-enforced by the consideration that while the defendant laid and used many thousand yards of pavements constructed of such blocks, no witness is produced to testify that they did not serve their purpose better than those in which the grain was vertical.

It is submitted, therefore, that the third, fourth, and fifth assignments of error should be sustained, and that the defendant should be required to account as to the Ballard and Waddell patents, as well as to the patent of Cowing.

Finally, it is maintained that neither for the reasons given by the court below nor upon any of the other grounds considered in this brief can the decree below dismissing the bill of complaint be upheld, and that, therefore, the remaining assignments of error should be sustained, the decree below reversed, and an accounting ordered.

A. S. WORTHINGTON,
Of Counsel for Appellant.

Opinion of the Supreme Court of the District of Columbia.

SUPREME COURT OF DISTRICT OF COLUMBIA.

TALLMADGE E. BROWN
v.
DISTRICT OF COLUMBIA.

The complainant claims for the infringement of three several patents held under various assignments.

The District of Columbia is charged with having caused to be laid down for public use, and without license from the owners of the patents, several patented pavements, and using patented wooden blocks and using a patented method of producing them.

Patent No. 94,063, issued to Ballard, and afterward partially assigned to complainant, was for *a method of cutting blocks* for a wooden pavement, so as to form by two cuts, or one cut and one splitting, two finished blocks, with top and bottom level or in parallel planes, and the sides beveled, one side *being inclined with the fiber*, and without waste of material.

There is no evidence in the cause that the authorities of the District of Columbia or their agents had anything to do with the production of blocks to be used on the streets of the kind described or of any other kind. Those blocks were furnished under contracts; and if any one is guilty of infringing this patent, it was the contractor, and not the District. The purchase of a product does not constitute the purchaser an infringer of the patent for the machine or process by which it is produced.

Another patent alleged to be infringed is No. 94,062, issued to Ballard August 24, 1869.

This is for two things, viz.:

1. The block itself, before described, *as an article of manufacture—i. e.*, a wedge-shaped block having the grain running parallel to one and oblique to the other of their beveled sides; and

2. A wooden pavement constructed of these blocks.

That wedge-shaped blocks of wood for pavements were not new when this patent was applied for is substantially admitted in the application. And indeed they are described both in Cowing's previous application of 1865 with one beveled side, and in Miller & Mason's patent of March, 1868, with both sides beveled.

The advantages claimed for the block having the grain parallel with one beveled side upon which the whole claim to novelty rests are, in my judgment, purely fanciful, and this block has no patentable novelty. If so, neither is there any patentable novelty in a street laid with this kind of block and having that only as its merit. I found my judgment as to this both on the testimony and ocular inspection.

I do not think, therefore, that any case is made out of an actionable infringement as to patents Nos. 94,062 and 94,063.

The more difficult question relates to patent No. 101,590, originally applied for by Turner Cowing in 1865, but afterward issued to the complainant, his assignee, in 1870.

The defendant insists that this patent also is void for want of novelty, and in its answer gives notice of several prior patents, English and American, which are supposed to anticipate the alleged invention.

A memorandum of these, in the order of their dates, is as follows:

Chambers's Patent (English), 1824:

Nature of the invention:

"Consists in an *arrangement of conical-formed* stones, etc.,

placed on their natural bases, cemented together at their lower extremities, and having their remaining interstices filled with loose materials insoluble in water."

He proposes, however, for all ordinary pavements to make use of stones broken and hewn in the manner in which they are usually prepared for paving, but taking care, in their application to the said improved pavement or carriage-way, always to lay their natural bases or largest end downward, which is the exact reverse of the mode adopted by paviours.

Lindsay Patent (English), June, 1825:

Describes his street as—

"Paved with the common or usual-sized paving stones; but the method of arranging them is as follows: Instead of laying them with their broadest ends upward, I lay them with their broadest ends downward; *and, as each stone is made of a wedge form, this leaves a considerable space open between the stones.* These I close with smaller *stones of a wedge form,* which, being carefully placed and well rammed down, after a sufficient quantity of fine gravel or grout has been worked between them, will make a pavement nearly as substantial as a solid sheet of granite."

Nicholson Patent, 1854; reissue 1867:

Board or other foundation made waterproof; square blocks in transverse rows, with spacing strips between *to make a groove,* the *groove to be filled with broken stone, gravel, and tar,* or other like materials.

Cowing's Patent No. 101,590; application in 1865; issued in 1869:

First application:

"The nature of my invention consists in *providing and arranging blocks of a peculiar shape in manner to form wedge-shaped crevices for the reception of earth or gravel, and wherein such earth and gravel will be retained to act as a key to bind and confine the blocks in their place.*"

The amended claim in 1869 is for "a wood pavement composed of blocks, each side having a single plane surface, and one or more of the sides being inclined, and the blocks being so laid on their larger end *as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling.*"

It will thus be seen that Cowing does not claim the use of wood as new in the construction of pavements, nor does he even claim the use of wedge-shaped blocks as new, for he expressly disclaims a pavement composed of wedge-shaped wooden blocks when they are laid alternately on the larger and smaller ends. But what he claims is, substantially, the *collocation* or *arrangement of the blocks* so as to leave wedge-shaped grooves or spaces between them to receive concrete or other suitable filling to act as a key to bind the blocks together.

This claim may be susceptible of two constructions:

1. It may be construed to be a claim for a new arrangement of paving blocks of a known shape, without reference to their material; or

2. It may be a claim for the application of a known arrangement to a new material—*i. e.*, wood instead of stone.

If the first, it seems to me that it was anticipated by the patent of Lindsay of the year 1825.

He proposed to use wedge-shaped stone blocks, with the large end downward, and fill in the wedge-shaped crevices with small wedges of stone, gravel, and grout, thus accomplishing precisely the same end proposed by Cowing.

It seems to me that this is the proper construction of Cowing's claim. He lays no stress upon the use of wood. He says nothing about the filling being forced by ramming into the fiber of the wood, as does the witness for complainant. But finding the material actually in use or coming into use, but without special reference to that,

he proceeds to invent, as he supposes, a novel mode of using it, so as to have a compact and durable street surface.

But if the second construction be the proper one, I should say that the substitution of a new material in a known device or arrangement or mode of construction of a street would not, according to the decisions of the Supreme Court, be a patentable novelty.

On these grounds I feel constrained to hold that Cowing's patent can not be sustained, and consequently the bill of complaint must be dismissed.

WALTER S. COX, J.

Brief for Appellant.

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, A. D., 1888.

TALLMADGE E. BROWN,
Appellant,

vs.

THE DISTRICT OF COLUMBIA.
Appellee.

No. 137.

C. C. COLE, Solicitor for Appellant,
Des Moines, Iowa.

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, A. D., 1888.

TALLMADGE E. BROWN,
Complainant and Appellant,
vs.
THE DISTRICT OF COLUMBIA,
Defendant and Appellee.
} No. 137.

Brief for Complainant and Appellant.

BY C. C. COLE.

STATEMENT OF THE CASE.

This is a bill in equity brought by the complainant, Tallmadge E. Brown, a citizen of Des Moines, Iowa, against the defendant, the District of Columbia, a municipal corporation, for discovery, injunction, profits and damages because of the infringement by the defendant of three certain patents for improvement in wood pavement, &c.

First. A patent for "Improvement in Wood Pavements," applied for by Turner Cowing, inventor, on November 13, 1865, and afterwards issued to Tallmadge E. Brown, assignee, on April 5, 1870, being No. 101,590.

Second. A patent for "Improvement in Wood Pavements," applied for by William W. Ballard and Buren B. Waddell, inventors and afterwards issued to William W. Ballard, assignee, on August 24, 1869, being No. 94,062.

Third. A patent for "Improvement in Cutting Blocks for Wood Pavements," applied for by William W. Ballard and

Buren B. Waddell, inventors, and afterwards issued to William W. Ballard, assignee, on August 24, 1869, being No. 94,063.

By proper assignments, duly recorded in the Patent Office in September, 1870, Talmadge E. Brown became the owner of two undivided fifth parts of each of the said patents, William W. Ballard the like owner of two-fifths, and Edward L. Marsh the like owner of one-fifth of each thereof.

These three owners became partners in the business of laying wood pavements, under the firm name of the Ballard Pavement Company, and conducted said business from 1870 till June 20th, 1874, at which last date the said firm being indebted to various persons in about the sum of fifty thousand dollars, the said Ballard & Marsh assigned to Tallmadge E. Brown all their interests in all the assets of said firm, including the claims for damages for infringements of patents, &c., in consideration of the payment by said Brown of said indebtedness of the firm.

This suit is brought by the complainant, Tallmadge E. Brown, in his own right, and as assignee as aforesaid of Ballard and Marsh, to recover damages for the infringement of all of said patents by the defendant, the District of Columbia, during the years 1870, 1871, 1872, 1873, and down to June 22, 1874. The infringement alleged is in the laying of wood pavements, substantially like those described in said patents, in the use of the wedge shape block, patented in No. 94,063 and in laying the pavement thereof, as patented in No. 94,062, by the defendant, the District of Columbia, on numerous streets, avenues, and alleys in the cities of Washington and Georgetown, in said District.

A discovery and accounting, an injunction, and gains, profits and damages are prayed for.

The defendant filed a general demurrer to the bill, which was overruled by the court. Then the defendant filed a plea that no notice of the fact of infringement had been given. This plea was also overruled, but without prejudice to the right of the

defendant to make same defense by answer, and leave to answer was given.

The defendant by answer admitted the citizenship and corporate character of parties as stated; traversed, by avering want of information and by denial, all other averments of the bill; and averred issue of other prior patents, naming them, covering the claims of complainant's patents. Also avers prior use, by certain cities named, of pavements substantially like complainant's patent more than two years before the same were applied for; that complainant and his assignees had knowledge of the alleged infringing by defendant, and gave no notice of his rights or patents; that the patents are void because the alleged inventions are neither new nor useful; and that the complainant's claims are barred by the statute of limitations. By an amendment to the answer, a large number of other anticipating prior patents, to the complainant's, are set up and named.

The court below dismissed complainant's bill absolutely, upon the ground that the patents sued upon were not valid, being either not new or without patentable novelty.

The complainant appeals.

ASSIGNMENT OF ERRORS.

The appellant assigns as errors of the court below, as follows:

1. In not finding and holding the Cowing patent to be for a new and patentable invention and valid.

2. In not finding and holding the Ballard patent, No. 94,062, to be for a new and patentable invention and valid.

3. In not finding and holding the Ballard patent, No. 94,063, to be for a new and patentable invention and valid.

4. In not finding and holding that complainant was entitled to the relief prayed for.

5. In dismissing complainant's bill absolutely.

ARGUMENT.

I.

AS TO THE DEFENSE OF THE STATUTE OF LIMITATIONS: *First.* Local statutes of limitation do not apply to suits for infringements of patents, which can only be brought in United States courts.

Collins vs. Peebles, 2 Fish., 541.
Parker vs. Halleck, 2 Fish., 543.
Read vs. Miller, 3 Fish., 310.
Wood vs. Cleveland, 4 Fish., 550.
Anthony vs. Carroll, 9 O. G., 199.
Vaughn vs. Railway Co., 11 O. G., 789.

Second. The statute governing patent cases provides that "all actions shall be brought during the term for which the letters patent shall be granted or extended, or within six years after the expiration thereof." (The patents involved in this case had not expired when this case was tried below, and the alleged infringements were all prior to the taking effect of the U. S. Revised Statutes.)

Act of July 8, 1870, Ch. 230, Sec. 55.
U. S. Revised Statutes, Secs. 5597 and 5599.
Vaughn vs. Railway Co., 11 O. G., 789.

II.

As to the DEFENSE OF WANT OF NOTICE OF THE PATENT BEFORE INFRINGEMENT: The testimony in the case very fully shows that notice was given to the officers of the defendant having charge of its pavement work, prior to its infringement by the defendant. Such evidence consists in a printed notice, found as exhibit "L'," on printed record, page 81; the testimony of T. E. Brown, on pages 23 and 24, and of William Ballard, on pages 29 and 30. This was sufficient under the statute.

U. S. Revised Statutes, Sec. 4900.

Besides, it is not necessary for complainant, in the first instance, to prove notice of the patent to the infringer, in order to fix his liability.

Goodyear vs. Allyn, 6 Blatch., 33.
Emerson vs. Simm, 6 Fish., 281–289.
Hawes vs. Washburn, 5 O. G., 491–493.

III.

AS TO THE COWING PATENT, No. 101,590: *First.* It is assailed because of the delay in its issue, it having been applied for November 13, 1865, and rejected, and on renewal again rejected, and this rejection repeated, until finally the patent was granted April 5, 1870. The claim in the first application was for a paving block constructed with *one inclined side*, so as to form a wedge-shaped crevice for the reception of gravel to act as a key to confine the blocks in their place, &c. The final claim was for a paving block having *one or more inclined sides*, forming between them wedge-shaped crevices for the reception of gravel to act as a key to confine the blocks in their places, &c. The change is not material; indeed the two claims are in effect the same, as is very apparent from the merest observation. If only one side is inclined, it will form a wedge-shaped crevice; if more than one side is inclined, it may increase the size of such crevice; it will not change nor affect the principle of the patent or the pavement.

In this respect the history of the Cowing patent is not materially different from the Nicholson pavement patent. The form of pavement first described and claimed by Nicholson, was alternate squares of wood block, and gravel concrete, like a checker board; but during the years of its pendency, and before the patent was issued, the claim was so changed as to make the pavement in alternate rows of wood block and gravel concrete extending entirely across the street. So also in the case of the Singer Sewing Machine, and many others cited below.

Second. Specifications in an application for a patent may

be amended by adding new specifications and new claims involved in the original specifications, models and drawings, and a patent may issue for all, having effect from the date of first application.

Singer vs. Braunsdorf, 7 Blatch., 521–530.
Winans vs. Denmead, 15 How., 330–343.
Godfrey vs. Eames, 1 Wall., 317–324.
Seymour vs. Osborn, 11 Wall., 516–560.
Smith vs. Goodyear, 93 U. S., 486–489.
Dunbar vs. Myers, 94 U. S., 187–195.
Machine Co. vs. Murphy, 97 U. S., 120–125.
Elizabeth vs. Pavement Co., 97 U. S., 126.

As we have above stated and shown, and as is abundantly manifest from the simple reading of the specifications and claims, as well as from the drawings, there can be no question but that the changes and additions were involved and embraced in the original specifications, drawings and claims.

Third. The rule is equally well settled, and, indeed, is a part of the one last above stated, that where a patent has been granted, it relates back to, and takes effect from, the date of the first application, and avoids intermediate patents.

Godfrey vs. Eames, 1 Wall, 317–324.
Johnson vs. Fassman, 1 Woods, 138–142.
Rich vs. Lippincott, 2 Fish., 1–9.
Dental Co. vs. Wetherbee, 3 Fish., 87–97.
Blandy vs. Griffith, 3 Fish., 609–617.
McMillan vs. Barclay, 5 Fish., 189–199.
Henry vs. Stove Co., 9 O. G., 408.
Elizabeth vs. Pavement Co., 97 U. S., 126–127–9.
Ballard vs. City of Pittsburg, 12 Fed. Rep., 783.

The case last cited involved the validity of the identical patents sued upon in this case. The opinion is by Judge McKennan, who is, we believe, universally recognized as the most able and profound jurist in patent law, now upon the ***nisi prius*** bench. The case was submitted to him some time

before this was tried in the court below, and held under advisement for several months, and not decided till about the time of the decision in this case, The opinion of Judge McKennan in the case cited evinces the broad and searching comprehension, the healthful vigor, and unusual power and clearness which characterize his judicial decisions. We can add nothing to it, except it be to say that a final judgment was rendered against the city of Pittsburg for a large sum, pursuant to the opinion, which was paid by the city without appeal. The opinion holds that the patent to Miller & Mason, (also relied upon in this case,) which was applied for and issued after the application by Cowing, and before the issuance of the patent to him, is subordinate to Cowing, although their patent is prior in date to his.

Fourth. The defendant pleads and relies upon various patents, as was done in the Pittsburg case, for the purpose of proving that Cowing's invention was not new; that it had been anticipated by other inventions.

(*a.*) First among such patents, most relied upon by counsel for defendant in the court below, was that re-issued to Nicholson, Aug. 20, 1867. (See printed Record, pp. 151–157.) The excellency of Nicholson's invention of wood pavement has been so much approved by extended use, that it may well be referred to as illustrating the highest state of the art at that time, and for several years after its issue.

But experience developed defects in its practical workings. The Nicholson pavement was made of rectangular blocks, from three to four inches thick, and five to six inches long, and of such a width as the planks from which they were cut, chanced to be. The street, being first graded in proper form, was then covered with boards, and thereon were set these blocks, upon their ends in rows entirely across the street, with alternate rows of shorter and thinner blocks, (or of inch boards laid on their edges,) leaving narrow grooves or channel-ways to be filled with gravel and concrete. The defect developed by use, was the tendency of the shorter blocks or boards to work up above the others, by the pressure in haul-

ing over it heavy loads first one way and then the other, and to force out the thinner blocks and concrete, thereby obstructing the way and admitting moisture and water into the grooves, hastening decay, etc.

To remedy this defect was the intent of Cowing. His invention consists in providing and arranging blocks of a peculiar shape, in manner to form wedge-shaped crevices for the reception of earth or gravel, and wherein such earth and gravel will be retained to act as a key to bind and confine the blocks in their place, and the blocks being placed so that the gravel spaces will extend lengthwise across the direction of the street, so that, besides wedging and holding the blocks securely, they will furnish a better foothold for animals drawing heavy loads.

It is obvious from these few suggestions, and indeed without them, that Cowing's invention was in no respect anticipated by Nicholson.

(*b.*) The next in order relied upon is the English patent to Chambers, of date Feb. 28, 1824. (See printed Record, pp. 168–171.)

Chambers declares his "invention to consist in an arrangement of conical-form stones, or other hard mineral or silicious substances of the said form, placed on their bases, cemented together at their lower extremities, and having their remaining interstices filled with loose materials insoluble in water, such stones so arranged constituting an improved pavement or carriage road."

It is evident from this statement of his invention that it has no relation to and is not suggestive of Cowing's invention. One is a cone; the other a truncated wedge. One is of stone; the other is of wood. One is held in place, the cones kept together at their lower extremities, by the use of cement; the other rests on its broad and level base, each touching the other, and thereby held in place. One has the interstices filled with loose material; the other fills and rams the crevices with earth and gravel. One fills the interstices with broken flints, insoluble in water, so as to avoid mud; the

other covers the interstices with earth and gravel, to act as a key to confine the blocks in their place. There is not a single material, element, purpose or characteristic in common with the two inventions.

But the real invention by Chambers is best shown by his own statement, contained in his application and set forth in his patent, to wit: "Now, whereas I have hereinbefore described the shaped stones which I conceive to be best adapted for the purpose of my said improved pavement or carriage-way, but as the cutting of stones of a sufficient hardness for this purpose into this exact shape would be attended with great expense, I propose for all ordinary pavements, to make use of stones broken and hewn in the manner in which they are usually prepared for paviors, but taking care in their application to the said improved pavement or carriage-way always to lay their natural bases or largest ends downwards, which is the exact reverse of the mode adopted by paviors."

Chamber's invention, then, consists in preparing a firm and solid bed of rammed earth, and thereon to place ordinary paving stones with the large ends down, and hold them in place by cement at their base, instead of using a sand or soft earth bed, and putting the paving stones on the smaller ends, to be held in place by the earth or sand beneath and between them, as was the mode adopted and then in use by paviors. The more carefully his patent is read and examined the more entirely foreign to any thought, suggestion or purpose underlying the invention of Cowing it will appear.

(*c.*) The next in order, relied upon in the court below, is the English patent issued to John Lindsay, June 14, 1825. (See printed record, pp. 163-167.)

Lindsay's invention consists in placing upon a prepared roadway three lines of granite curb-stones laid flat transversely upon a firm base of hard material. The line in the middle of the roadway is twice as broad as those upon either side of it, being sufficiently wide to permit the wheels of two carriages to roll upon them and pass each other; the other lines are equi-distant from the center line, and on which the

wheels on the other side of the carriage roll. Granite is also used for the construction of the gutters, which are made equally as strong as the lines of granite-way. Between these granite lines or wheel-ways is constructed a pavement whereon the horses travel. These are "paved with the common or usual sized paving stones, but the method of arranging or laying them is as follows: Instead of laying them with their broadest ends upward, I lay them with their broadest end downwards, and, as each stone is made of a wedge form, this leaves a considerable space open between the stones; these I close with smaller stones of a wedge form, which, being carefully placed and well rammed down, after a sufficient quantity of fine gravel or granite has been worked between them, will make a pavement nearly as substantial as a solid sheet of granite, well suited to enable horses to travel on safely while the lines of large transverse stones will form a surface to receive the action of the wheels, and be nearly equal in point of smoothness to a well formed railway."

This patent is, evidently, so far as respects its carriage way, limited to two points of claimed invention. First, the curbstone laid transversely, forming wheel-tracks for carriages; and second, the laying of paving stones with their broadest ends downward. Inded, those are the very claims made by the patentee himself and he negatives his sole right to thus lay paving stones. The fact that the patentee in his specifications refers to paving stones as being made of a wedge form, can constitute no anticipation of Cowing's invention of perfectly formed, truncated wedge-blocks. Figure three of the drawing shows the ever varying and never uniform shape of the crevices (if, indeed, they may be called such,) made by the laying of "common paving stones" with their larger ends downwards; and while figure two shows that a horizontal view between two paving stones so laid would exhibit an irregular, wedge-shaped space, yet it would be no more suggestive of Cowing's patent than a model or picture of a wedge found in any other connection or relation. It cannot be, in any sense of the patent law, an anticipation of Cowing's invention; it is not even suggestive of it.

While these patents and others have been pleaded or relied upon in the answer, in both this and the Pittsburg case, yet neither the counsel in this case nor in that have discussed, or even mentioned in argument, any other than the hereinbefore named patents as anticipating that of Cowing. We do not, therefore, deem it either necessary or proper for us to here discuss, or even refer to the other patents named in the answer. Those named and discussed, we confidently submit, cannot be regarded as, in any legal or mechanical sense, anticipating Cowing's patent, or even as suggestive of it.

IV.

AS TO THE BALLARD AND WADDELL PATENT, NO. 94,063, THE METHOD PATENT, ISSUED AUGUST 24, 1869: *First.* The state of the art of wood paving is sufficiently stated and shown, by that we have before said, and by reference to the patents of Nicholson, of Cowing, and of Miller and Mason. But notwithstanding the great and fully acknowledged superiority of the wedge-shaped block over the rectangular block, yet the waste of lumber and consumption of labor in producing wedge-shaped blocks were so great as to almost, if not altogether, inhibit their use in the construction of wood pavements. To illustrate the extent of this waste of lumber and consumption of time, suppose we take an ordinary paving block, say, six inches high, four inches thick, and twelve inches wide. This would be an average Nicholson rectangular block, and would contain two feet, or twenty-four inches of lumber, inch-board measure. Now, if we cut a wedge-shaped piece from each side of it, one-half inch thick and tapering to an edge, we will have left a wedge-shaped paving block three inches thick at the top, four inches thick at the bottom, six inches high, and twelve inches wide. In other words, by the labor of two cuts with a saw entirely across the two sides of the block, and by a waste of one-half inch, or one-eighth of the entire original block, we have the Cowing or Ballard wedge-shaped block instead of the Nicholson rectangular block. In other words, we have wasted twelve and a-half per cent. of the lumber, and have made three cuts, or one cut and two

splits, to get the wedge-shaped block, whereas the Nicholson block was produced with one cut and no waste.

That is to say that, prior to the invention by Ballard and Waddell, now under consideration, in order to produce the wedge-shaped block it was necessary to waste twelve and a-half per cent., or one-eighth of the lumber, and to do three times as much labor as to produce the Nicholson rectangular block. Either the waste or the extra labor is largely in excess of the average profit upon mechanical products, and together, constituted a practical inhibition upon their manufacture or use. The increased cost of a square yard of pavement, by reason of this waste and extra labor, would approximate fifty cents—made up of the cost of about seven feet of wasted lumber and many feet of extra sawing, besides the increased expense of handling the blocks in their manufacture three several times, instead of once.

These remarks sufficiently demonstrate the value and importance of the Ballard and Waddell patent for the method of producing such blocks. The superiority of the wedge-shaped block produced by this method over one produced by the old method is also claimed as an additional element of value and merit in the patent. That superiority, if it is one, is not itself an invention, but is rather an incident inseperable from and inherent in a wedge-shaped paving block produced by this method, to-wit: the fiber of the wood being inclined or leading and running with the incline of one side of the block.

This block, according to the invention of Ballard & Waddell, is made by cutting from the timber at an angle, and then splitting into two, at a like angle, the piece so cut from the timber, thereby, with one cut and one split, producing two perfect paving blocks. The fiber of one side of each block so produced will run with the incline of that side. While this leaning of the fiber with one side of the block is the necessary result of that method of producing it, and is not, therefore, an independent invention, yet it is a result which adds to the practical value of the block, to some slight extent, at least, for that, such leaning fibre presents less obstruction than the

perpendicular fibers do, and, therefore, facilitates the ramming and packing of the earth and gravel in the wedge-shaped crevices between the blocks to serve as a key to bind them. This advantage might not, of itself and alone, be sufficient merit, advantage or novelty to sustain a patent; but when taken in connection with the saving of lumber, and the economy of labor and time, both in sawing and handling, they are together so fully sufficient as to become entirely conclusive.

Second. But it is asserted and claimed by the defendant that this method of producing paving blocks is not new, for that it had been known to and used by others long before. To establish this point of their defense, they produce and rely, upon the following evidence, to-wit:

(*a.*) The testimony of N. C. Draper, found in printed record, page 112, and following. He testifies that he first made paving blocks in 1872 and 1873. When asked what block he first then manufactured, he answered: "It was a block which was worked on a bevel after being cut off a square block of timber; it was cut square first, then the edges of it were beveled off this way. It was cut off from a plank three to four inches long and running from ten to sixteen inches wide." He was then asked if he had manufactured wedge-shaped wooden blocks; and if so, when. "Yes, sir; I made them during those years that I spoke of, in 1873 and later. I could not state exactly what year I made them." "Q. 10. State what was the shape and what were the dimensions of these wedge-shaped and beveled blocks. A. They were cut off timber seven inches thick and of various widths, and five inches long, and were cut on a bevel. Q. 11. I want to know first the shape of the paving block? A. The shape of the paving block was four inches on one end and three on the other, *and one side bevel and the other side straight.*" * * * "Q. 20. Was that the first time that you had cut timber in that way? A. It was the *first time that I ever cut any wooden pavements*, but I have cut a wedged-shaped block at various times. Q. 21. How long before? A. Well, I should judge it was ten years before, and perhaps longer. I could

not say positively. Q. 22. State whether or not it was usual at that time in your business to cut wedge-shaped blocks for various purposes by first cutting a block by a cross-cut from that piece of timber and then splitting that block by a saw so as to divide it into two wedged-shaped blocks? A. It was a usual thing in my business. Q. 23. How long at that time had you known and used this method of producing wedge-shaped blocks? A. I had been cutting wedge-shaped blocks in that manner for thirty years or more."

It is manifest from the testimony of this witness, who was examined by continuous leading questions, that he does not and did not comprehend the difference between the Ballard & Waddell method of cutting paving blocks and the ordinary method of cutting wedges from pieces of sawed timber; that he did not understand the difference either in the product or the method of producing wedges or wedge-shaped blocks with one side beveled and those with two sides beveled. He testifies that in 1865 or 1866 he cut some wedge-shaped blocks for a Mr. Wright, at the Arsenal, which were about an inch at one end, some two inches at the other, about seven inches long and from three to four inches wide, and that they were cut substantially after the Ballard & Waddell method; but on cross-examination he is unable to state the use they were put to, where any of them can now be found, and does state that the persons whom he names as assisting in cutting these blocks are either dead or gone to parts unknown. Further than this, he fails to state that at the time he testifies that he cut the blocks, he had a partner in that business who was still living in this city. We afterwards accidentally found out that he had such a partner, Mr. Henry S. Davis, of this city, whose testimony we took, and who very fully negatives Mr. Draper's statements. (See printed record, pp. 209–212.)

This is all the testimony taken by defendant to show prior use. How signally it falls short of the requirements for such a defense is well illustrated by the following two well-settled rules and the authorities cited in support of them, to-wit:

The patent itself makes a *prima facie* case in favor of the patentee, that he was the first inventor.

Curtis on Patents, §472.
P. and T. R. R. Co. vs. Stimpson, 14 Pet., 449-458.
Roberts vs. Dickey, 4 Fish., 532-541.
McComb vs. Ernst, 1 Wood., 195-203.

The party asserting a prior use of a claimed invention has the burden of proof on him, and must show such use beyond any reasonable or fair doubt.

Coffin vs. Ogden, 18 Wall., 120-124.
Howe vs. Underwood, 1 Fish., 160-175.
Goodyear vs. Day, 2 Wall., Jr., 283-299.
Hayden vs. Suffolk, &c., 4 Fish., 86-104,
Webster vs. Higgins, 16 O. G., 675-678.
Washburn vs. Haish, 4 Fed. Rep., 900-904.

(*b.*) But it is further claimed that this method of cutting pavement blocks is shown by the patent granted to Miller & Mason, March 31, 1868. (See printed record, pages 149-151.)

The specifications forming a part of that patent contain the following language: "The blocks A are to be cut from plank, and are of the usual size, having the *fiber vertical.* The blocks of our pavement, however, differ from all other blocks in use of pavements, in having both sides beveled from top to bottom, as shown by the end view of the blocks in the drawings. * * * The blocks can be cut with *less waste* of material by cutting them from timber, and splitting the timber blocks with a proper bevel."

A complete answer to this claim of the defendant is found, we submit, in the two material facts contained in the above extracts from the specifications in Miller & Mason's patent. First, the block must have the "*fiber vertical,*" and it is *mechanically impossible* to cut *such* blocks by the Ballard & Waddell method, If cut by their method the fiber is necessarily *leaning.*

Again it is said in the specifications, that the blocks can be cut with "less waste" by cutting them from timber, and then *splitting* the timber blocks *with a bevel.* If the blocks are cut from timber by the Ballard & Waddell method, there is *no waste;* but the *cutting* must be at *a bevel,* as well as the spliting. The cutting of blocks from timber, as described by Miller & Mason, is shown by exhibit "*Z*" on printed record, page 82, where the cutting of the timber is at right angles and the splitting at a bevel. In this mode there is "less waste," for, when the block is cut from plank, there is a waste of two wedge-shaped pieces for each block; but when cut from timber as shown by the exhibit "*Z*," there is a waste of only *two* wedge-shaped pieces for each *three* blocks. If cut from plank there must be one cut and two splits for each block, but if cut from timber, it takes but one cut and four splits to make three blocks.

The Miller & Mason patent makes no mention of *sawing* the lumber at a *bevel,* but it is to be *split* at a *bevel.* Miller's expressed idea is to saw the lumber *without* the bevel, split it *with* the bevel and waste *less.* Ballard's idea as expressed in his patent is, too *saw* at a bevel, *split* at the same bevel and waste *nothing.*

These physical facts amount to a *demonstration* that the Miller & Mason method of cutting paving blocks is not and cannot be the Ballard & Waddell method or, in any way a suggestion of it.

(*c.*) It is also further claimed that this method of cutting paving blocks is anticipated and shown by a patent granted to Henry Millengar on the 5th day of April, 1864. (See printed record, pages 185-188.)

This invention consists of making a rectangular groove in the middle of the edges of a board, one and one-eighth inch thick, the groove being in width equal to the flange of the board upon each side of it, and then splitting the board obliquely from the outer angle of the groove on one edge to the outer angle of the opposite side on the other edge, thus making two weatherboards or pieces of siding, in using which the groove or rebate will form the lap, and the whole board fit snugly to the studding.

The very point of the claim by the counsel for defendant being, as we understand it, the identity of the "splitting at a bevel." But we confidently submit that the analogy is too remote and limited, to constitute any fairly debatable basis for the claim made by counsel. It seems to us that the first impression, like the fully considerate judgment of every unbiased mind, must be against this claim, and hence we do not further discuss it.

These items constitute, as we believe, all the evidence relied upon and discussed by counsel in the court below, for the purpose of showing the prior use of the method patent issued to Ballard. That it signally falls short of such showing is too apparent to require further discussion.

V.

AS TO THE BALLARD & WADDELL PATENT NO. 94,062—FOR IMPROVED WOOD PAVEMENT, ISSUED AUGUST 24, 1869. This is a patent for a wood pavement, constructed of wedge-shaped blocks produced in the method specified by the patent, and also for such blocks as an article of manufacture.

If the Cowing patent and the patent for the *method* of producing these wedge-shaped blocks, with the grain or fiber of the wood running with the incline or bevel of one side, are sustained and held valid and effective, then, as we understand it, there is no question by the counsel for the defendant, but that this patent is valid and should be upheld also. In other words, there are no special, separate or distinctive objections to this patent; that is, there are no other than those urged to the two preceding patents, sued upon in this case. We need not, therefore, further discuss it here, than to say that it is a combination patent, having the Nicholson foundation, the Cowing-shaped block and key filling, with the Ballard method of cutting and the product block thereof, constituting an economical and practical pavement.

It will be observed that these three patents, to-wit: the Cowing patent for the wedge-shaped blocks, the Ballard patent for the method of cutting such blocks, and the Ballard

patent for such blocks as an article of manufacture, and for a wood pavement laid therewith in the manner specified, severally and jointly, enter into and constitute the wedge-shaped block pavement complete—that laid by the defendant and constituting the infringements complained of.

VI.

AS TO THE INFRINGEMENT. The infringement of each and all of these three patents is directly, distinctly and positively proven by the testimony of the witness, D. N. Row, printed record, pp. 35–41, and by the witness, J. T. Baldwin, printed record, pp. 41–47.

If it be urged that this testimony shows that the work was done by contract, and, therefore, the defendant cannot be liable for infringing the "*method patent*," it is a sufficient answer now to say that, *non constat*, the defendant may have *required* the contractors, by the very terms of the contract, to cut the blocks according to the "method" patent of Ballard; and if so, the liability of the defendant would be unquestionable. The complainant's *prima facie* case is sufficiently made, by showing that the blocks were cut by persons in the employment of the defendant, and were put to its use. All the facts can be fully shown upon the final trial or inquiry as to damages. This is submitted without admitting or stopping to discuss the rule of law, where such infringement is made by persons doing work under a contract. That claimed rule can be fully discussed and its true limits ascertained on such final trial, and it can be applied to the facts proven, truly and properly.

VII.

The maintenance of the validity of all these patents, shows both the progress of the art and the wisdom and consistency of the action of the Patent Office. Nicholson's invention of rectangular block and wood pavement, with its filling of gravel and tar, in 1854; Cowing's invention of truncated wedge-shaped block, with its crevice and key of rammed

earth and gravel, in 1865; Miller & Mason's combination of Nicholson's wood foundation, with Cowing wedge-shaped blocks and key filling, in 1868; Ballard & Waddell's method of cutting wedge-shaped blocks, and also for pavement made with them, in 1870, each meeting a developed defect and consequent demand of its predecessor, and together constituting a complete whole.

Respectfully submitted.

C. C. COLE,

Des Moines, Iowa,

Solicitor for Complainant.

IN THE

Supreme Court of the United States.

OCTOBER TERM, 1888.

No. 137.

TALLMADGE E. BROWN, APPELLANT,

vs.

THE DISTRICT OF COLUMBIA, APPELLEE.

BRIEF FOR THE APPELLEE.

HENRY E. DAVIS,
For the Appellee.

JUDD & DETWEILER, PRINTERS.

IN THE

Supreme Court of the United States.

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No. 137.

TALLMADGE E. BROWN, APPELLANT,

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THE DISTRICT OF COLUMBIA, APPELLEE.

BRIEF FOR THE APPELLEE.

I.

STATEMENT OF THE CASE.

This is a suit in equity instituted in the supreme court of the District of Columbia for the infringement of certain letters patent of the United States for wood pavements, namely, No. 94062, issued August 24, 1869; No. 94063, issued August 24, 1869, and No. 101,590, issued April 5, 1870. The complainant claims to be the assignee of these several patents and alleges their infringement by the defendant.

The bill as amended alleges (Par. 10, Rec. 3, 13, 14, and 15) that the defendant, in the years 1870, '71, '72, '73, and between the first day of January, 1874, and the twenty-second day of June, 1874, in violation of the rights of the complainant, "made, laid, and used wood pavements substantially

like those described in and covered by said letters patent.' The bill accordingly seeks an injunction, discovery, and account in the premises.

By way of defense the defendant first pleaded the local statute of limitations (Rec. 13); which plea stood also to the bill as amended (15). The defendant also demurred (15); and this demurrer was overruled, with leave to answer (16). The defendant then pleaded that the complainant and the patentees had, prior to the alleged infringement, laid their pavement, and the defendant had no notice of the fact that it was infringing the patents or either of them (16 and 17); and upon hearing this plea was overruled without prejudice to the right of the defendant to make the same defense in its answer, and with further leave to answer (16 and 17). Thereupon the defendant answered, calling for proof of material averments of the bill; denying that pavements were laid down within the District of Columbia under the patents named in the bill; asserting that none of the contracts made by the defendant called for pavements to be laid under said patents; denying any violation of the rights of the complainant; alleging that all the substantial claims of the said patents were covered by previous patents granted to others than the complainant or his assignors; that wooden pavements in all substantial particulars identical with those described in the patents named in the bill had been laid and used by many cities more than two years before the said letters patent were applied for; that, although the complainant and his assignors were present in said District while the pavements in question were being laid, neither he nor they ever informed or notified the District that in making its contracts and laying said pavements it was violating his rights or infringing his patents; that neither the complainant nor his assignors ever gave, as required by law, sufficient notice to the public or the defendant that his alleged invention was patented; that the alleged patents are null and void, for that the alleged invention is neither new nor useful; that the

laying of said pavements, in fact, was disadvantageous and disastrous to the defendant, and that the matters and things set up in the complainant's bill are barred by limitations (18 and 19). Subsequently, by leave of the court, the answer was amended by the specification of other alleged prior patents than those set up in the bill (216).

In special term, on hearing, the bill was dismissed, which action was affirmed in general term (217 and 218). The complainant appeals to this court.

The claim of patent No. 94062 is for "certain new and useful improvements in street pavements" (5–6), specifically described as follows:

"1. As an article of manufacture, wedge-shaped blocks having the grain running parallel to one and oblique to the other of their beveled sides, and produced substantially in the manner referred to."

"2. A wooden street-pavement constructed, substantially as hereinbefore described, of wedge-shaped blocks, with the grain running and produced in the manner and for the purpose set forth." This is commonly known as the Ballard pavement.

The manner of production of the blocks and construction of the pavement are described to be as follows: The bed of the street is slightly arched, the ends of the arch resting against the curbs; strips are then laid upon said arch at right angles to the curb and at convenient distances apart; upon these strips is laid a flooring composed of boards of any desired dimensions, and the blocks are then laid on this flooring in rows and so as to break joints; these blocks are of a wedge shape and are so laid as that their bases shall touch, forming a continuous arch across the street and leaving V-shaped spaces between the rows; these spaces are filled with concrete or its equivalent, and the whole surface tarred over if thought necessary; the gutters are formed by inclining the bed slightly upward at the curb and splitting the

ends of the blocks off to fit against the curb and the last one of the street blocks. A more perfect description of the blocks and the manner of producing them is said to be given in another then pending application on file in the Patent Office, entitled "A method of cutting blocks for street pavements," prepared and executed by the applicant on the 29th day of September, 1868. The peculiarity of the blocks used in this pavement is said to be that they are wedge-shaped and have both sides at acute angles with the base and the grain running parallel with one and oblique to the other of these sides (5, 6).

The claim of patent No. 94063 is for "An improved mode of cutting blocks for wood pavement" (7), more particularly described as follows: "The herein-described method of cutting blocks for wooden pavement, so as to form by two cuts, or one cut and one splitting, two finished blocks with top and bottom level or in parallel planes and the sides beveled, one side being inclined with the fiber, and without waste of material, substantially as set forth" (8). The setting forth thus referred to is as follows: That the invention consists in a novel method of cutting and splitting blocks for wood pavement in such a manner that two cuts, or rather one cut and one splitting, will produce two finished blocks with level top and bottom and two sides beveled, one with the grain and the other slightly oblique to the grain, without more waste of timber than is occasioned by the saws. The cutting process is with a piece of lumber of given dimensions that is placed under the saws in an inclined position, so that the first cut will produce blocks with two sides inclined, the top and bottom level or in parallel planes. Each block thus produced then has certain dimensions with the fiber and is of a certain width across the fiber. The blocks are then split slightly oblique to the fiber, being brought toward the splitting saw in an inclined position, inclined in contradistinction to a position level at top and

bottom, in such a manner that the line of the cut will form the other two beveled sides of two blocks, each of which has the top and bottom level or in parallel planes and the sides beveled, and, moreover, has the grain running in the direction of one of the beveled sides. The advantages of this method claimed are economy of lumber and of labor and time, the only loss of lumber being the small pieces cut off at each end to start the bevel, and each two cuts, or rather one cut and one splitting, forming two complete blocks ready for use.

The claim of patent No. 101,590 is for "a new mode of constructing wood pavements for streets" and is specifically described as follows: "A wood pavement, composed of blocks, each side having a single plane surface and one or more of the sides being inclined, and the blocks being so laid on their larger ends as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth." This is commonly known as the Cowing patent. The setting forth thus referred to is that the nature of the invention consists in providing and arranging blocks of a peculiar shape in manner to form wedge-shaped crevices for the reception of earth or gravel and wherein such earth or gravel will be retained to act as a key to bind and confine the blocks in their place; the blocks to be so placed that the gravel spaces may extend lengthwise across the direction of the street or road, so that besides wedging and holding the blocks securely they may furnish a better foothold for animals drawing heavy loads. The application expressly disclaims "a wooden pavement composed of wedge-shaped blocks when the blocks are laid alternately on larger and smaller ends, so as to form a continuous surface of wood" (4, 5).

In other words, the claim is directed to a wood pavement in which blocks with one or more inclined sides are so laid on their larger ends as to form wedge-shaped grooves or

spaces for the reception of any suitable filling. The controlling feature is wooden blocks of the form prescribed laid in the manner specified. The filling is an immaterial factor, since the special fillings named by the patentee, viz., concrete or earth and gravel, are but two of many well-known fillings for street pavements, and the patentee in his claim states expressly that the grooves are for ANY suitable filling. The claim therefore contemplates and includes any known kind of filling which will, in the language of the specification, "act to bind and confine the blocks in their place."

In determining whether the invention claimed is proper subject-matter for a patent the question is not whether wooden wedge-shaped blocks had never before been so laid on the larger ends as to form wedge-shaped spaces between them, but whether, in consideration of the state of the art as it was in 1865, a wood pavement possessing the characteristics specified in the claim was patentable within the meaning of the law.

Curtis on Patents, § 53, *seq.*

II.

ARGUMENT.

A.

State of the Art at the Time of Application for the Several Patents.

1. Paving blocks, both of stone and wood, having one or more inclined sides were known when the earliest of the applications for the patents in question was made. Stone and composition paving blocks of this kind are shown and described in Chambers' English Patent of February 28, 1824 (168 to 171, Defendant's Exhibit 10), and in Lindsay's English Patent of June 14, 1825 (163 to 167 Defendant's Exhibit 9).

Chambers describes his invention to be the laying of stones with their large end or natural base downward, grouted or cemented together at their bases by a good, strong cement which would resist the action of water, the upper part of the interstices thus left vacant to be filled with finely broken flints or other similar substances not soluble in water, which arrangement would effect as one result that no part of any stone could be acted upon by a pressure downward without having a corresponding base to support the pressure. Figure 3 of the diagram accompanying the patent represents stones in the form of the frustum of a quadrilateral pyramid, which form, says the patentee, "I consider the best calculated to effect the required resistance to downward pressure, the size of which should be eight inches square at the apex, twelve inches square at the base, and ten inches high;" but because of the expense of cutting stones of sufficient hardness into this exact shape he proposed for all ordinary pavements to make use of stones broken and hewn in the manner then usual, but taking care in their application to his pavement always to lay their natural base or largest end downward. (169, 170.)

The preliminary description of his invention is that it consists "in an arrangement of conical-formed stones or other hard mineral or silicious substances of the said form placed on their natural bases, cemented together at their lower extremities, and having their remaining interstices filled with loose materials insoluble in water, such stones so arranged constituting an improved pavement or carriage road." (169.)

Lindsay's invention is described by him to be a pavement of "the common or usual sized paving stones, but the method of arranging or laying them is as follows: Instead of laying them with their broadest ends upwards, I lay them with the broadest ends downwards, and, as *each stone is made of a wedge form*, this leaves a considerable space open between the stones.

These I close with smaller stones of a wedge form, which, being carefully placed and well rammed down after a sufficient quantity of fine gravel or grout has been worked between them, will make a pavement nearly as substantial as a solid sheet of granite, well suited to enable horses to travel on safely (164–'5)." This patent includes, in addition, wheel tracks for carriages on streets or roads formed of curbstones laid transversely. In his specific declaration of his claim Lindsay distinctly says, "I do not claim the sole right to pave with stones having their broadest ends laid downwards" (167), evidently because of the prior patent of Chambers.

And the patent No. 101,590, in the disclaimer which precedes the claim, as already pointed out, in effect admits that wooden paving blocks of this kind were known, for the disclaimer is of wedge-shaped wooden blocks laid otherwise than in the manner specified in the claim. (5.)

2. The Chambers and Lindsay patents further show that it was not new to lay blocks having one or more inclined sides with their larger ends downward, so as to form wedge-shaped spaces beteen them. (See the patents, Exhibits 9 and 10, and testimony of McIntire, 54, 205.)

3. The same patents further show that it was not new to fill the wedge-shaped spaces between such paving blocks with a filling of suitable material. (See the Exhibits 9 and 10 and testimony, 205–'6.)

In figure 3, Exhibit 10 (171), as already noted, the blocks having all four sides inclined are laid with their broadest ends downward upon a prepared bed, and after being thus laid they are grouted or cemented together at their bases by a good, strong cement, after which the portions of the spaces still remaining left unfilled are filled with finely broken flints, &c. In other words, Chambers laid his blocks just as prescribed in the patent No. 101,590, and then filled the wedge spaces between them with a filling composed in part

of a good, strong grout or cement, and in part of finely broken flint or other substances not soluble in water. In Exhibit 9, figure 2 (167), the blocks are, as described by the patentee, "made of a wedge form and laid with their broadest ends downward," which "leaves a considerable space open between the stones." These spaces are filled with a filling which the patentee describes as "smaller stones of a wedge form" and "fine gravel or grout," and the testimony of complainant's own expert, McIntire (200 *et seq.*, 205), confirms this.

4. It was not new at the time in question to use "concrete or other suitable filling" between paving blocks or rows of paving blocks. This is matter of common knowledge. It was shown also in Nicholson's wood pavement (151 to 156, Defendant's Exhibit 7), which was originally issued August 8, 1854, and reissued August 20, 1867. As is seen by the specifications accompanying the diagrams, that pavement is composed of blocks of wood laid in rows across the street the rows being separated from one another to afford spaces, which are filled with concrete. These spaces are obtained by interposing narrow wooden strips between the blocks, differing in this respect from patent No. 101,590, in which the spaces are obtained by slanting or inclining the sides of the blocks. The latter, however, differs in nowise on the surface from a pavement consisting of rectangular wooden blocks, such as is illustrated in the Nicholson patent; the only difference between the two is in respect of the manner of obtaining the spaces to receive the concrete or other suitable filling.

It is thus seen that at the time in question it was old to make paving blocks with one or more inclined sides; it was old so to lay those blocks on their larger ends as to form wedge-shaped spaces between them for the reception of a filling or binding material to act as a key to hold the blocks in place; it was old to fill those wedge-shaped spaces with a

binding material to act as such key: in other words, all the things now claimed as the patentable features in question had before been introduced for pavements and had been used in the same way for the same purpose. Selection was made from the mass of known materials, and the materials thus selected were put together in the same way in which other materials before had been put together and for the same purpose and without substantial change of result.

5. If in the Lindsay pavement the blocks were of wood instead of stone there can be no doubt that it would have substantially anticipated the pavements in controversy; but the use of wood instead of stone is a mere substitution of material, and so not patentable.

Hotchkiss *vs.* Greenwood, 1 Whitman, 610; 11 How., 248.

Hicks *vs.* Kelsy, 2 Whitman, 475; 18 Wall., 670.

Reckendorfer *vs.* Faber, 92 U. S., 347.

And with this change—that is, of wood for stone—the Lindsay patent would differ in no respect from those in controversy, except in the character of the filling used; but the use of one known kind rather than another known kind of filling does not involve invention; they are used for the same purpose and with substantially the same result—acting to fill the recesses between the blocks and to bind and hold them in place. So that as respects the question of patentable novelty the only difference between the Lindsay pavement and those in controversy is an immaterial one.

Curtis on Patents, secs. 51, 52, and cases cited.

Phillips *vs.* City of Detroit, 17 O. G., 191.

If the pavements in controversy be compared with the Chambers pavement and like tests applied the same conclusion must follow.

The fact that the Chambers blocks have four inclined sides does not affect the question. The result of that is simply

to form the wedge-shaped spaces for reception of the filling on four sides, instead of on two, of the blocks, so that the filled spaces run not only crosswise but also lengthwise of the street; and the same mechanical expedient for obtaining and filling the spaces between adjoining blocks is employed in each case, except in the latter one set of filling spaces (those running lengthwise of the street), are abandoned and only the other set (those which run crosswise), used, which latter feature was common at his time in both wooden and stone pavements.

An attempt is made to distinguish Cowing's pavement No. 101,590 from the Chambers and Lindsay pavements, on the ground that in the former the filling tends to imbed itself into the blocks, while in the latter it cannot. As was pointed out by the court below, this claim is not made in the specification, but appears only in the testimony. (Testimony of McIntire in rebuttal, 201–'2.) This difference, if in fact a difference, is wholly immaterial, for the same effect would be obtained in ramming filling between the wooden blocks of any wooden pavement. The filling would have the same tendency "when forced downwardly to extend laterally into the fibre of the wood and seat itself therein" (202, fol. 519); and whatever difference there might be in the cases of a wooden and stone pavement, any such difference between two wooden pavements would be in degree and not in kind.

And comparing the pavements in controversy with the rectangular block pavement, of which the Nicholson pavement is a type (Exh. 7, Rec., 151–'6), there is no patentable difference between them in view of the state of the art. They are composed of the same materials and present externally the same appearance; the blocks are laid in rows crosswise of the street with spaces between the rows filled with the specific filling, with the same liability of the filling "to extend

laterally into the fibre of the wood and seat itself therein." The only difference between them is in the means employed to obtain the spaces between the blocks. Nicholson employs for this purpose spacing strips and preserves the rectangular shape of his blocks. The pavements in controversy have blocks with inclined bases, the spacing strips being omitted. This latter is simply the employment of an expedient which had before been employed for the same purpose and with the same result, namely, by Chambers and Lindsay. One known means is thus substituted for another known means of obtaining filling spaces in a structure which is otherwise unchanged and remains the same. This is clearly not patentable.

Curtis on Patents, sec. 49.
Bean *vs.* Smallwood, 2 Story, 408.
Couse *vs.* Johnson, 16 O. G., 719.

B.

The patents Nos. 94062 and 94063 present a feature not existing in No. 101,590 and claimed to distinguish them from prior patents.

No. 94063 is for an improved mode of cutting blocks for wood pavement, and No. 94062 is for blocks produced by this mode as a new article of manufacture and also for a wooden pavement made of such blocks. From what has already been said it is clear that the manner of laying the blocks to form the pavement in nowise materially differs from that employed in prior pavements; so that unless the first claim of the patent No. 94062, which is, in effect, also the sole claim of No. 94063, can be sustained, the claim of a wooden pavement which is the result of this mode must of course fall.

Now, the Ballard block is identical in shape with the wedge-shaped blocks set forth in the Cowing patent, No. 101,590, the Chambers and Lindsay patents, and the Miller

and Mason patents (149 to 151, Defendant's Exhibit 6). The feature which is relied upon as so characterizing it and distinguishing it from others as to make it patentable, notwithstanding the others, is that the grain of the wood runs parallel with one and oblique to the other of its beveled sides.

The advantages alleged to accrue from this feature are—

(1.) That only one corner is liable to be broken in transportation, whereas this liability would exist at both corners if the fibre were mathematically vertical.

(2.) That the V-shaped filling spaces between the blocks have "one perfectly smooth side, and consequently the gravel in the filling is not so liable to jam and leave the lower portion of the space loosely or entirely unfilled" (50, 51).

It is difficult to treat these alleged advantages seriously. That they are immaterial and fanciful is admitted even by complainant's expert, McIntire (57, 59). If there be any such liability as referred to under the first head, then, inasmuch as the liability increases in proportion to the increase within certain limits of the inclination of the fibre from the perpendicular, that liability at the corner of the Ballard block must be double that at either of the corners of a block in which the fibre is mathematically vertical; in other words, the total liability in each case is the same. In the one case it is concentrated at one corner, and in the other it is distributed between two.

For the second alleged advantage there can be no foundation. The sides of the block incline but five degrees from the vertical, and the inclination is but one-half of an inch for every inch in height; and practically it would be impossible for either surface to retain any of the filling material as alleged. On the other hand, it may be said that, inasmuch as in proportion to the departure of the grain from the vertical the durability of the block is decreased, the Ballard block, which has the grain inclined, is less durable

and an inferior article to a block with vertical fibre. (McIntire on cross-examination, 59, 60; Robertson, 89–90.)

The fact is that the alleged characteristics of the block are merely incidental to the process by which the block is made, and grow out of and necessary result from that process. They impart no increased value or efficiency to the block. As an article *per se*, it is no better and no worse than other wedge-shaped wooden blocks, and does not essentially or materially differ from them. That the patent was granted with this understanding is clear. (Defendant's Exhibits 2, 3, 4, Rec. 123 to 138; testimony of Ellis Spear, 110 to 112.)

It is thus seen that this claim depends for its validity, not upon the novelty of the block *per se*, but upon the novelty of the process or method of making it. If this be the case the patent is clearly invalid.

Draper *vs.* Hudson, 6 Fisher, 327 (3 O. G., 355).
Milligan & C. Co. *vs.* Upton, 1 Banning & Arden, 498 (6 O. G., 837). Affirmed *sub nom.* Glue Co. *vs.* Upton, 97 U. S., 3.
McCloskey *vs.* DuBois, 19 O. G., 1286.

And that the method thus claimed does not possess patentable novelty in view of the state of art is disclosed by Defendant's Exhibits 6, 11 to 16 and 19, and Holtzapffel (Rec. 149, 171 to 194 and 196).

Exhibit No. 11 was objected to as evidence because it was not noticed in the answer. But as showing the state of the art it is clearly admissible.

Brown *vs.* Piper, 91 U. S., 37 (10 O. G., 417).
Westlake *vs.* Carter, 6 Fisher, 519 (4 O. G., 636).

These exhibits show that machines with tables adapted to be set at angles with saws for the purpose of cutting wood on a bevel had long been known (Exhibits 12, 13, 15, 16); that it had been usual to obtain lumber of wedge-shaped

cross-section by first cutting a plank from a log and then dividing this plank by an oblique splitting cut into two thinner planks of wedge-shaped cross-section without waste of material (Exhibits 13, 14, 15, 16; testimony, '63–4, 96–'7, 112 *et seq.*, 206–'7); and that stone and other material had been cut from the slab into wedge-shaped blocks without waste of material by first severing a block from the slab by an oblique cross-cut and then dividing this block by a second oblique cut into two similar wedge-shaped blocks (Exhibits 11, 19; testimony of Robertson, Rec. 90, 91).

An attempt is made to distinguish the method claimed in the patent from the methods disclosed in the exhibits. (Testimony of McIntyre, 202 to 204.) But it is admitted that this method is disclosed by the exhibits in every particular save one, and that is that in the case of the Ballard block the second oblique cut or splitting cut is made in a direction approximately parallel with the grain (*id.*, 206–'7). This, however, is an immaterial difference. The second oblique cut would naturally be made as it was desired the grain of the wood should stand. If it were desired to have the fiber of the wedge-shaped block horizontal, the cut would extend between the top and bottom faces of the rhomboid. If, on the other hand, it were desired to have the fiber of the wedge-shaped block upright, the cut would extend between the two side faces of the rhomboid. Such a change as this would not amount to invention; it would be but applying the discretion of the ordinary mechanic.

"It is not invention to change one well-known material for another or to apply a well-known process without some adaptation more than every skilled mechanic could apply to a new art or subject."

Isaacs *vs.* Abrams 14 O. G., 861; and see also Brown *vs.* Piper, 91 U. S., 37 (10 O. G., 417), in which it was held that the application of the old process of freezing ice cream and the like to the preservation of fish, with such modifications

as its application to the new subject demanded, was not patentable.

It is manifest that, in view of the state of the art, it was not new to obtain wedge-shaped blocks by first severing a block of proper size and shape from a stick or slab of a given material and then dividing this block by an oblique cut into two equal and similar wedge-shaped blocks. And, this being the case, there can be no good reason for holding that the language used in the specification of the Miller and Mason patent (Exhibit No. 6) does not describe the application of this process to cutting wooden paving blocks in terms sufficiently clear to be understood by those skilled in or acquainted with the art (150, 151).

The idea which underlies the alleged invention is the cutting of the blocks so as to bring the wide part of one block opposite the narrow part of the other, and thus save material. Inclining both sides of the block equally and making the first or cross cut a straight cut at right angles with the timber, instead of an oblique cut, are non-essential in the opinion of complainant's expert.

(Testimony of McIntyre, 57–60, and see Defendant's Exhibit No. 1, Rec. 123, and testimony of Robertson, 88 *et seq.*, 93–'4.)

The expedient for economizing material, such as is here claimed, has been commonly practiced in every branch of manufacture and trade, including the wood-worker (testimony of Draper, 112 *et seq.*), and is plainly lacking the elements of a patentable invention.

Snow *vs.* Taylor, 14 O. G., 861.

C.

The Cowing patent, No. 101,590, calls for further attention on two points:

(1.) The proceedings in the Patent Office on the applica-

tion on which the patent was finally issued (Defendant's Exhibit No. 5, 138 to 149; testimony of Robertson, 87 *et seq.*) show that the application was filed in the year 1865. As originally filed it neither described nor showed a paving block with more than one inclined side, and the applicant in his claim and specification expressly defines his invention to consist in making the block with one of its sides vertical and the other of its sides inclined.

The application was in the year 1865 rejected for lack of patentable novelty. The application, by reason of the failure of applicant to prosecute it, lapsed, and it was remitted to the condition of a rejected and abandoned application. No attempt was made to revive it until 1869, more than four years after it had been rejected. It was then revived, just how and by what means does not appear, and after its revival new descriptive matter was added to the specification and an additional drawing was filed enlarging the applicant's invention, and claim was broadly made to a block with one or more sides inclined (the added drawing showing a block with two inclined sides), instead of a block with one vertical and one inclined side, as contemplated originally by the applicant.

In the interim between the years 1865 and 1869, while this application lay dormant, patents issued to other parties for wood pavements, in which blocks having inclined sides were used and claimed in combination with other features. The applicant thus enlarged his claim to cover structures for which patents in the interim had issued to other parties, and to embrace an invention different from the structure to which his original application was specifically directed. (See Defendant's Exhibit No. 6, Rec. 149.) This practice is pointedly condemned by the Supreme Court in Chicago and Northwestern R. R. Co. *vs.* Sayles, 15 O. G., 243. 97 U. S., 554.

And the views there expressed apply with equal force to this case.

(2.) The character of Cowing's claim is, as was pointed out by the court below, susceptible of two constructions. His first application stated as follows: "The nature of my invention consists in providing and arranging blocks of a peculiar shape in a manner to form wedge-shaped crevices for the reception of earth or gravel, and wherein such earth and gravel will be retained to act as a key to bind and confine the blocks in their place." Says the Court in its opinion:

"The amended claim in 1869 is for 'a wood pavement composed of blocks, each side having a single plane surface and one or more of the sides being inclined, and the blocks being so laid on their larger end as to form wedge-shaped grooves or spaces to receive concrete or other suitable filling, substantially as set forth.'

"It will thus be seen that Cowing does not claim the use of wood as new in the construction of pavements; nor does he even claim the use of wedge-shaped blocks as new, for he expressly disclaims a pavement composed of wedge-shaped wooden blocks when they are laid alternately on the larger and smaller end; but what he claims is substantially the collocation or arrangement of the blocks so as to leave wedge-shaped grooves or spaces between them to receive concrete or other suitable filling to act as a key to bind the blocks together.

"This claim may be susceptible of two constructions:

"1. It may be construed to be a claim for a new arrangement of paving blocks of a known shape without reference to their material; or, 2, it may be a claim for the application of a known arrangement to a new material—*i. e.*, wood instead of stone.

"The first of these constructions," says the Court, "seems the proper construction of Cowing's claim. He lays no stress upon the use of wood; he says nothing about the filling being forced by ramming into the fiber of the wood, as does the witness for the complainant, but finding the material actually in use or coming into use, but without special reference to that, he proceeds to invent, as he supposes, a novel mode of using it so as to have a compact and durable street surface."

If this construction be correct it is clear that Cowing was anticipated by Lindsay; and if the latter of the two constructions be correct it is equally clear that the claim does not exhibit a patentable novelty.

The case of Ballard *vs.* City of Pittsburgh, 12 Fed. Rep., 783, is relied on by the appellant as a judicial establishment of the validity of the patents involved. A glance at that case will show that of the patents here claimed by the appellee as anticipating those set up only the Miller and Mason patent was there considered. The Chambers, Lindsay, &c., patents were not before the court.

D.

The Alleged Infringement.

1. With respect to patent No. 94063, for the mode of making the blocks involved, there is nothing in the record showing that the defendant either used the method therein claimed or procured others to use it.

The sale or use of the product or manufacture of a patented machine or process is no violation of the exclusive right to make, use, and sell the machine or process itself. And where a known manufacture or product is in the market purchasers are not bound to inquire whether it was made on a patented machine or by a patented process.

Goodyear *vs.* Central R. R. Co., 1 Fisher, 626.
Boyd *vs.* McAlpin, 3 McLean, 427.
Boyd *vs.* Brown, *id.*, 295.

2. As respects the use of any of the blocks claimed to be covered by the patents in controversy, the evidence is that certain persons engaged in laying pavements for the late Board of Public Works of the District of Columbia used such blocks (36–'7, 39, 42–'3). The contracts, if any there were, under which this was done are not in evidence, and it does not appear that the Board of Public Works had any other

relation to the work of paving than to procure paving to be done, without regard to any special form of the paving material. This defense is specially set up in the answer (18, fol. 48).

3. The Board of Public Works was not the District of Columbia, and an infringement by the board of the patents in question could not make the District liable. The case of Barnes *vs.* D. C., 91 U. S., 540, has no application to a case of this sort.

HENRY E. DAVIS,
For the Appellee.

130-117

ADDITION TO TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 186.

HENRY G. THOMPSON, APPELLANT,

vs.

THOMAS G. HALL, J. F. OLIVER, SAMUEL LEOPOLD, AND DAVID L. HARRIS.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF NEW YORK.

FILED JANUARY 19, 1889.

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1 COMPLAINANT'S EXHIBITS.

List of exhibits transmitted to clerk of United States Supreme Court, Washington, with the record on appeal in the suit of Henry G. Thompson *vs.* Thomas G. Hall *et al.*

1. Exhibit 1st. Manuscript. ✓
2. " 2nd. Manuscript. ✓
3. " 3rd. Metallic. ×
4. " 4th. Manuscript. ✓
5. " 5th. Metallic. ×
6. " 6th. Manuscript. ✓
7. " 7th. Manuscript. ✓
8. " 8th. Manuscript.
9. " B. Card. ✓
10. " C. Metallic. ×
11. " D. Metallic. ×

DEFENDANTS' EXHIBITS.

1. Johnson file wrapper and contents. Manuscript. ✓
2. Decision of examiner-in-chief. " ✓
3. Hall's application, prepared by Broadnax. " ✓
4. Hall's patent of March 14, 1867. " ✓
5. Hall's reissue. " ✓
6. Hall's patent of November 5, 1878 (No. 7). " ✓
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14. No. 9, lead-pencil sketch. " ✓
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32. No. 4, nipper jaws.	Metallic.
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45 exhibits transmitted.

[Endorsed:] List of exhibits transmitted to U. S. Supreme Court in suit of Henry G. Thompson *vs.* Thomas G. Hall *et al.*

COMPLAINANT'S EXHIBIT 1ST. H. E. T., Special Examiner.

3 U. S. C. C., E. Dist. N. Y.

HENRY G. THOMPSON *v.* THOS. G. HALL *et al.*

(2–175.)

18562.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an instrument of writing executed by Moses Carlyle Johnson, recorded in Liber U 24, page 4. Said record has been carefully compared with the original and is a correct transcript thereof.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 29th day of August, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

4 *Assignment.*

Liber U[24], p. 4.

To all whom it may concern:

Be it known that I, Moses C. Johnson, of Milford, Conn., have invented an improvement in cutting plyers, and have executed an application for letters patent of the United States upon the same, said application being filed June 2d, 1880.

Now, for the sum of one dollar to me paid by Henry G. Thompson, of said Milford, the receipt of which is hereby acknowledged, and for other good and valuable considerations by me received, I do hereby grant, sell, and assign to the said Henry G. Thompson my said application, the invention therein contained, and the letters patent which may be granted therefor, to be held and enjoyed by the

said Henry G. Thompson, his successors and assigns, as fully and entirely as the same would have been held and enjoyed by
5 me had this assignment and sale not been made.

And I do hereby authorize and request the Commissioner of Patents to issue said letters patent to Henry G. Thompson aforesaid as sole assignee of all right, title, and interest in and to said invention and letters patent.

In witness whereof I have hereunto set my hand and seal this — day of June, A. D. 1880.

MOSES CARLYLE JOHNSON.

Recorded July 9th, 1880.
Ex'd. M. McK.
L. M.

[Endorsed:] 18562. D., '83.

6 COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

7 COMPLAINANT'S EXHIBIT 2D. H. E. T., Special Examiner.

U. S. C. C., Ea. Dist. N. Y.

HENRY G. THOMPSON *v.* THOS. G. HALL *et al.*

THE UNITED STATES OF AMERICA.

No. 232,975.

[Vignette.]

To all to whom these presents shall come:

Whereas Moses C. Johnson, of Milford, Connecticut, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in cutting pliers, he having assigned his right, title, and interest in said improvement to Henry G. Thompson, of same place, a description of which invention is contained in the specification of which a copy is hereunto annexed and made a part hereof, and has complied with

the various requirements of law in such cases made and provided; and whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Henry G. Thompson, his heirs or assigns, for the term of seventeen years from the fifth day of October, one thousand eight hundred and eighty, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this fifth day of October, in the year of our Lord one thousand eight hundred and eighty, and of the Independence of the United States of America the one hundred and fifth.

[Seal Patent Office, United States of America.]

A. BELL,
Acting Secretary of the Interior.

Countersigned:
E. M. MARBLE,
Commissioner of Patents.

(Here follows diagram marked p. 8.)

9 UNITED STATES PATENT OFFICE.

MOSES C. JOHNSON, of Milford, Connecticut, assignor to Henry G. Thompson, of same place.

Cutting-Pliers.

Specification forming part of Letters Patent No. 232,975, dated October 5, 1880; application filed June 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, Moses C. Johnson, of Milford, county of New Haven, State of Connecticut, have invented an improvement in cutting-pliers, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to cutting-pliers, and is an improvement on that class of pliers represented in United States patent No. 209,677, dated November 5, 1878, granted to T. G. Hall, to which reference may be had. In that invention either of the two hand-levers may be turned on its pivot without turning the other, and the tool-body formed by the face or covering plates is permitted to vibrate or turns more or less with relation to the handles, and the central space between the cutting-faces of the jaw-levers, when the pliers are taken in the hand to be used, drops more or less out of line with the central line of the handles, making, as it were, a loose joint midway between the ends of the pliers.

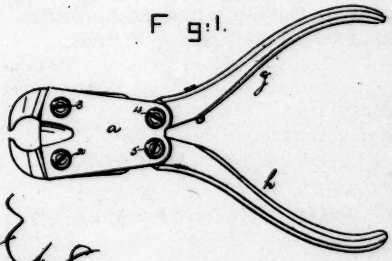
One of the objects of my invention is to construct a stiff pair of

M. C. JOHNSON.
Cutting Pliers.

8

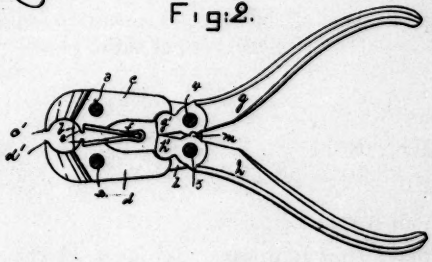
No. 232,971 Patented Oct. 5, 1880.

Fig: 1.



No. 186.
Thompson
Hallstead
Pa.

Fig: 2.



WITNESSES-
A. Reynolds
L. F. Connor.

INVENTOR-
Moses C. Johnson.
by Crosby & Gregory Attys.

pliers, or pliers in which the hand and jaw levers shall each be compelled to move positively in an opposite direction to the movement of its fellow, or a pair of pliers in which the tool-body shall not of itself swing or vibrate upon the pins or studs holding the hand-levers.

In the patent above referred to the end of wire or other thing cut off by the cutters drops into and injures the spring that opens the jaw-levers. This I obviate by providing each jaw-lever with a lip to cover or bridge the space between the jaws as the jaw-levers are closed.

My invention consists in the combination and arrangement of parts for effecting these ends, as hereinafter specified and claimed.

Figure 1 represents, in side elevation, a pair of cutting-pliers containing my improvements; and Fig. 2, a like view with one of the body or side plates removed.

The body of the pliers is composed of two side plates, *a b*. These side plates are fixed together by the screws 2 3 4 5. Of these screws, those 2 3 are the fulcra of the jaw-levers *c d*, having at their ends the usual cutters or cutting-surfaces *c' d'*. Each of these jaw-levers has a lip, *l*, and the end of one meets the end of the other lip just as or just before the two cutting-edges *c' d'* separate the wire or other metal end to be cut off by them, thus closing the space between the said jaw-levers and side plates, in which is placed the spring *f*, and preventing the entrance into said space of hard pieces of wire or other articles that would clog the pliers. These lips also serve another essential purpose—viz., that of holding the ends of the spring from displacement and obviating the employment of a separate pin or stud to hold the said spring at one end, as heretofore common.

The screws 4 5 serve as the fulcra for the hand-levers *g h*, having short arms *g' h'*, to act upon the ends of the longer arms of the jaw-levers and turn them on their fulcra to close the jaws and bring the cutting-edges together. The spring *f* opens the jaws the instant the clasping pressure on the hand-levers is relaxed.

In order to move the jaw-levers equally at all times and prevent the jaw-levers and body of the pliers turning on the handles, I have provided one hand-lever with a prong, *m*, having a rounded end that enters a rounded notch in the opposite lever. This one prong and its notch are always in engagement, and so connect the two levers that the body of the pliers cannot vibrate on the screws 4 5, but, on the contrary, the two levers may turn each on its own pivot, both levers always turning the same distance, but in exactly opposite directions. This connection between the two hand-levers, as described, insures a stiff pair of pliers, that can be handled more readily and accurately than the old form of cutting-pliers referred to, and which are more positive as to the movement of the cutting-jaws.

I am aware in bolt-cutters, where the short ends of the hand-levers are jointed with the long ends of the cutting-jaw levers, that a series of teeth or cogs have been interposed to cause the hand-levers to be geared together; but in such bolt-cutters one single tooth and notch

would not operate to always keep the two hand-levers locked together as to their movement in unison, as is the case with my one prong, *m*, rounded at its end and inserted within a rounded notch.

I claim—

The body composed of the side plates, *a b*, the independent fulcra 2 3 4 5 for the jaw-levers and hand-levers, the jaw-levers provided with cutting-edges and with lips *e*, and the hand-levers having short arms *g' h'*, and a prong and notch always in engagement, as described, combined with the V-shaped spring, held, as described, by the lips of the jaw-levers, all as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MOSES C. JOHNSON.

Witnesses:
SAM'L LLOYD.
GEO. E. FRISBIE.

COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 11*a*.)

COMPLAINANT'S EXHIBIT 4TH. H. E. T., Special Examiner.

U. S. C. C., Eastern Dist. of New York.

HENRY G. THOMPSON *vs.* THOS. G. HALL *et al.*

Certification waived Sept. 26, '83.

AMOS BROADNAX,
Defendants' Solicitor.

T. G. HALL.
Cutting-Nipper.

11a

No. 209,677. Patented Nov. 5, 1878.

No. 186.
Thumps on
Hall et al } p. 11a

Fig. 1

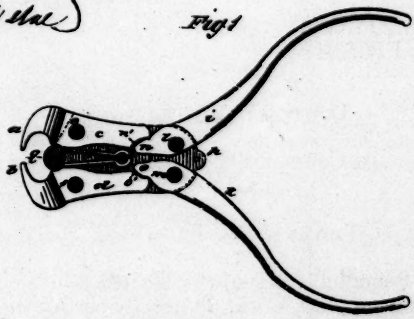


Fig. 2.

WITNESSES:
Francis McDuffie
C. Sedgwick

INVENTOR:
T. G. Hall
BY Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS G. HALL, of New York, N. Y.

Improvement in Cutting-Nippers.

Specification forming part of Letters Patent No. 209,677, dated November 5, 1878; application filed August 30, 1878.

To all whom it may concern:

Be it known that I, Thomas G. Hall, of the city, county, and State of New York, have invented a new and useful improvement in nippers, of which the following is a specification:

In letters patent No. 64664, granted to me May 14, 1867, a pair of nippers is shown in which the movable cutting-jaw is at the end of a lever that is operated upon by a pivoted handle, whereby great power is obtained upon the cutting-edges.

The object of my present invention is to furnish nippers that have great cutting power, and to lessen the expense of their manufacture.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

In the accompanying drawing, figure 1 is a side view of my improved nippers with one of the side plates removed. Fig. 2 is an edge view of the nippers.

Similar letters of reference indicate corresponding parts.

a b are the jaws of the nippers, formed with cutting-edges, as usual. The jaws *a b* are each at the outer end of levers *c d*, respectively.

e is the fulcrum-pin of lever *c*, and *f* is the fulcrum-pin of lever *d*. The jaws are opened by a two-armed spring, *g*, held by a pin, *h*, between the levers.

i k are the handles, that are hung upon fulcrum-pins *l m*, respectively, so that the handles act as levers. The inner end of handle *i* is formed as a toe, *n*, that acts upon the lever *c*, and the handle *k* is formed with a toe, *o*, that acts upon the lever *d*. The toes *n o* of the levers *i k* work in cavities *n' o'* of the levers *c d*, thus throwing the jaws *a b* apart until the stop-pin *q* is reached. These parts are sustained by the side plates, *p p*. The fulcrums *e f* of the levers *c d* and fulcrums *l m* of the handles *i k* are screw-pins, that are entered through holes in one plate, *p*, and screw into holes in the plate *p* at the opposite side. The parts are thus securely held together.

q is a pin, held by the plates *p* between the outer end of the levers *c d*, in such position that the jaws or levers will bear against the said pin *q* just before the cutting-edges come into contact, to prevent injury to the edges by contact or overlapping.

The nippers are operated by pressing the handles *i k* toward each other. Each jaw *a b* is acted upon by compound leverage, and the pressure upon any article placed between the cutting-faces is augmented by the dual construction of the parts. The parts of the nippers are compact and strong, and not likely to break by any pressure

that can be applied by hand. The nippers are easily put together or taken apart for repairs, and the parts are of such shape that the lever-jaws are interchangeable, as are also the handles.

Having thus fully described my invention, I claim as new and desire to secure by letters patent—

The combination, with the levers *c d* and plates *p*, of the pin *q*, arranged between said levers, and in front of their fulcrums, as and for the purpose specified.

THOMAS G. HALL.

Witnesses:
C. SEDGWICK.
GEO. D. WALKER.

13 COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

14 THOS. G. HALL, PRESIDENT. A. GUSTAM, SECRETARY.

Interchangeable Tool Company,

FACTORY,
America Express Bld'g,
55 HUDSON ST.

OFFICE,
No. 71 Broadway,
NEW YORK.

Hall's Patent Double Compound Lever Cutting Nippers.

NEAT, HANDY, STRONG, AND DURABLE.

Of the many Cutting Nippers heretofore placed on the market not one has supplied either of the two great needs long felt by all who use them, viz.: 1st. Increased power without a clumsy and expensive increase of size. 2d. That the construction of the Nipper should be such that any damage to the cutting jaw or handle from wear or accident could be repaired.

The HALL NIPPER meets these requirements fully, being constructed as shown in the cuts, and made perfectly interchangeable in all its parts; a jaw, handle, or any other part can be removed readily and replaced without trouble at a very trifling cost.

These Nippers are made entirely of the very finest quality of steel, made expressly for them, the different parts being drop-forged by the COLT'S FIRE ARMS CO., of Hartford, Conn., which is sufficient guarantee of the excellence of the work, and are finished under the personal supervision of the inventor.

From "SCIENTIFIC AMERICAN," Dec. 21st, 1878.

"NEW CUTTING NIPPERS.—Cutting wire by means of the ordinary cutting pliers is an operation often requiring the entire strength of both hands, making it a difficult matter under some circumstances to use a tool of this description. Any one who has used cutting nippers has seen the necessity of an easier means of doing this kind of work. The accompanying engraving represents a new form of cutting nippers which fulfill these requirements. It was recently patented in this country and in Europe by Mr. THOMAS G. HALL, of New York city, and is manufactured by the INTERCHANGEABLE TOOL COMPANY, 71 Broadway, New York.

2—186

"In addition to the great power attained, it possesses the further advantage of not becoming entirely useless from the fracture of jaw or handle. In this nipper a broken jaw or handle can be easily replaced, as all of the parts are perfectly interchangeable, and a new piece may be obtained from the manufacturers at the cost of a few cents. This advantage will be apparent, as all users of such tools well know that other nippers broken in the handle or jaw are useless and must be replaced by a new tool."

PRICE-LIST.

	Per dozen.	Extra jaws, per doz.	Extra handles, per doz.
No. 1—Size, 4 inches; Jaws open to cut wire, 1–16 in. diameter..	$12 00	$3 00	$2 00
" 2— " 5 " " " " 3–32 in. "	15 00	3 50	2 25
" 3— " 6 " " " " 1–8 in. "	18 00	4 00	2 50
" 4— " 7 " " " " 3–16 in. "	24 00	4 50	3 00
" 5— " 8 " " " " 1–4 in. "	27 00	5 00	3 50

Handsomely polished, or in ordinary black tool finish, as ordered.

NICKEL PLATED—No. 1, 2, or 3, extra per dozen, $3.00; No. 4 or 5, extra per dozen, $5.00.

Manufactured by the

INTERCHANGEABLE TOOL COMPANY.

15 [Endorsed:] Thompson *vs.* Hall. Complainant's Exhibit 6th. J. E. B., sp. ex'r. 28 June, 1884.

16 COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

17

From Interchangeable Tool Co., 59 Hudson St., N. Y.

New York, Mar. 5, 4 p. m., '80.

U. S. postage, [Vignette.] Three 3 cents.

J. M. ADAMS, Esq.,

Dean St.,

So. Side, 3rd House from 4th Ave.,

Brooklyn, N. Y.

[On back of envelope:] J. J. Brooklyn, N. Y., Mar. 5, 6 p. m., '80. Rec'd.

18 COMPLAINANT'S EXHIBIT 7TH. J. E. B., Sp. Ex'r. 28 June, 1884.

THOMPSON *vs.* HALL.

Thomas G. Hall, president. A. Gustam, secretary.

Office of Interchangeable Tool Company, American Express buildings, 57 & 59 Hudson street, manufacturers of Hall's patent compound lever cutting nippers and other fine tools on the interchangeable system.

NEW YORK, *M'ch* 5, 1880.

J. M. Adams, Esq.

DEAR SIR: I beg to inform you that your resignation as sup't has been accepted, and that your name will be stricken from the payroll of this company in thirty days from date.

Very respectfully, J. F. OLIVER, *Sec'y.*

19 COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

20

If not delivered in ten days return to New York, N. Y.

New York, Apr. 7, 4.30 p. m., '79.

U. S. postage, [Vignette.] Three 3 cents.

J. M. ADAMS, Esq.,

15 *Madison St., Hartford, Conn.*

[On back of envelope:] Hartford, Conn., Apr. 8, 7 a. m. Rec'd.

21 NEW YORK, *April 5th*, 1879.

J. M. Adams, Esq., 15 Madison St., Hartford, Conn.

DEAR SIR: We shall be ready to commence work in our shop in about ten days and will probably by that time have possession of the shop adjoining the one at present occupied by us, which will give us sufficient room to arrange our machinery, &c., &c., in the most economical manner with a view to the economy of time and space.

As I will not be able to go to Hartford for some little time, owing to death in my family, I write now to offer you the position of foreman and tool-maker in our shops and would like very much to have a personal interview with you at as early a date as would be convenient, and am satisfied that if you can do as well as represented by our mutual friend, Mr. Bullard, we can make an arrangement that will be satisfactory and to our mutual interest. If you come down here about the 12th or 15th inst. I would like you to arrange for time enough to make a list of machines required and also to assist in selecting the same.

What I want to do is, in the event of an arrangement, to
22 have you take full and entire control of our manufacturing, hire and superintend all the workmen, and follow your own judgment and experience as to the best methods of procedure in finishing our wares for the market.

We are now heavily pressed with orders for our nippers, and speed in production will be an important item.

I need hardly say to you that your chances for preferment will be good, depending on your own ability to do what has been represented you could.

But, as more can be said in an hour than written in a day, I await your reply stating when I will have the pleasure of seeing you.

Yours respectfully, A. GUSTAM,
Sec'y I. T. Co.

Address A. Gustam, 71 Broadway, New York.

[Endorsed:] Thompson *vs.* Hall. Complainant's Exhibit 8th. J. E. B., sp. ex'r. 28 June, 1884.

23 COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause,

Room No. 177 Oct 10 1878

Mr. M. L. Johnson Dr.

To Room Rent	1 week to date	50
Washing		
Carriage		
Expressage		
25 Received Payment.	J. J. Coe per Kelley	

and is herewith transmitted with the record on appeal to the United Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

24 EX. B FOR COMPL'T.

(Here follows diagram marked p. 25.)

26 COMPLAINANT'S EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

27 DEFENDANTS' EXHIBIT JOHNSON'S FILE WRAPPER AND CONTENTS. J. E. B., Sp. Ex'r. 6 June, 1884.

THOMPSON *vs.* HALL.

(2–175.)

6951.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of

this office of the file wrapper, contents, and drawing in the matter of the letters patent granted Moses C. Johnson, assignor to Henry G. Thompson, October 5, 1880, number 232,975, for improvement in cutting pliers.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 16th day of April, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

BENJ. BUTTERWORTH,
Commissioner.

28 BOSTON, *May* 31*st*, 1880.

Hon. Comm'r of Patents.

DEAR SIR: Enclosed please find a check, No. 184, for $110.00, to be applied as follows:

M. C. Johnson, plyers, dr'g & sp'n-	$15 00
Howe and Chandler, mechanical movements, dr'g & sp'n-	15 00
	30 00

The balance of $80.00 to be applied for final fees, as per enclosed slips.

Very respectfully, CROSBY & GREGORY,
Per A. R.

[Endorsed:] 10971. Patent Office, U. S. A., Jun- 2, 1880.

29 To the Commissioner of Patents:

Your petitioner, residing in Milford, Connecticut, prays that letters patent may be granted to him for the improvement in cutting plyers set forth in the annexed specification, and he hereby appoints J. B. Crosby and G. W. Gregory, of the firm of Crosby & Gregory, of the city of Boston, or their duly appointed associate, his attorneys to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

MOSES C. JOHNSON.

1 dr., $15. Check.

30 No model.

Specification.

To all whom it may concern:

Be it known that I, Moses C. Johnson, of Milford, county of New Haven, State of Connecticut, have invented an improvement in cutting plyers, of which the following description, in connection with the accompanying drawing, is a specification:

31 This invention relates to cutting plyers and is an improvement on that class of pliers represented in United States patent No. 209,677, dated Nov. 5th, 1878, granted to T. G. Hall, to which reference may be had.

In that invention either of the two hand levers may be turned on its pivot without turning the other, and the tool body formed by the face or covering plates is permitted to vibrate or turns more or less with relation to the handles, and the central space between the cutting faces of the jaw levers, when the pliers are taken in the hand to be used, drops more or less out of line with the central line of the handles, making, as it were, a loose joint midway between the ends of the plyers.

Sept. 3, '80. One ^of the objects [part] of my invention is to construct a stiff pair of pliers or pliers in which the hand and jaw levers shall each be compelled to move positively in an opposite direction to the movement of its fellow, or a pair of plyers in which the tool body shall not of itself swing or vibrate upon the pins or studs holding the hand levers.

Am'd't July 3, '80. In [that ^the patent] ^above referred to the end of wire or other thing cut off by the cutters drops into and injures the spring that opens the jaw levers.

This I obviate by providing each jaw lever with a lip to cover or bridge the space between the jaws as the jaw levers are closed.

Insert A, Sept. 3, '80.

32 Figure 1 represents in side elevation a pair of cutting plyers containing my improvements, and figure 2 a

Am'd't July 3, '80. like view with [the upper] one of the body or side plates removed.

The body of the plyers is composed of two side plates, *a b*.

These side plates are fixed together by the screws 2 3 4 5.

Of these screws, those 2 3 serve as the fulcra of the jaw levers *c d*, having at their ends the usual cutters or cutting surfaces *c' d'*.

Each of these jaw levers has a lip, *l*, and the end of one meets the end of the other lip just as or just before the two cutting edges *c' d'* separate the wire or other metal end to be cut off by them, thus closing the space between the said jaw levers and

Am'd't July 3, '80. side plates, in which is placed the spring *f*, and prevent[s] ^ing the entrance into said space of hard pieces of wire or other articles that would clog the plyers.

These lips also serve another essential purpose, viz., that of holding the ends of the spring from displacement and obviating the employment of a separate pin or stud to hold the said spring at one end, as heretofore common.

33 The screws 4 5 serve as the fulcra for the hand levers *g h*, having short arms *g' h'* to act upon the ends of the longer

Words and letters enclosed in brackets erased in original.

arms of the jaw levers and turn them on their fulcra to close the jaws and bring the cutting edges together.

The spring *f* opens the jaws the instant the clasping pressure on the hand levers is relaxed.

In order to move the jaw levers equally at all times and prevent the jaw levers and body of the plyers turning on the handles I have provided one hand lever with a prong, *m*, having a rounded end that enters a rounded notch in the opposite lever.

This one prong and its notch are always in engagement and so connect the two levers that the body of the plyers cannot vibrate on the screws 4 5, but, on the contrary, the two levers may turn each on its own pivot, both levers always turning the same distance, but in exactly opposite directions.

This connection between the two hand levers as described ensures a stiff pair of plyers that can be handled more readily and accurately than the old form of cutting plyers referred to, and which are more positive as to the movement of the cutting jaws.

I am aware, in bolt-cutters where the short ends of the hand levers are jointed with the long ends of the cutting-jaw levers, that a series of teeth or cogs have been interposed to cause the
34 hand levers to be geared together, but in such bolt-cutters one single tooth and notch would not operate to always keep the two hand levers locked together as to their movement in unison, as is the case with my one prong, *m*, rounded at its end and inserted within a rounded notch.

35 I claim—

1st. In cutting plyers, the body and the jaw levers pivoted thereon, combined with the hand levers, also pivoted thereon, and provided with the short ends *g' h'* to bear against and turn the jaw levers to close their cutting edges together, one hand lever having a prong, *m*, made to enter a notch in the opposite hand lever, the said prong and notch always remaining in engagement in all positions of the hand and jaw levers, all as and for the purpose described.

Substitute A, July 3, '80.

2nd. In cutting plyers, the body of the plyers and the two independently movable jaw levers pivoted thereon, each on separate fulcra and provided each with a lip, *l*, combined with the V-shaped spring between the said jaws to separate the cutting edges, the said lips preventing the entrance of the pieces formed by the plyers entering between the jaw levers and spring, as and for the purpose set forth.

3rd. The body, composed of the side plates, *a b*, the independent fulcra 2 3 4 5 for the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips *l*, and the hand levers hav-

---

Words and sentences enclosed between rules erased in original.

ing short arms *g' h'*, and a prong and notch always in en-
36 gagement, as described, combined with the V-shaped spring, held, as described, by the lips of the jaw levers, all as and for the purpose set forth.

37 In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MOSES C. JOHNSON.

Witnesses:
SAM'L LLOYD.
GEO. E. FRISBIE.

38 STATE OF CONNECTICUT, *County of New Haven:*

Moses C. Johnson, the above-named petitioner, being duly sworn, deposes and says that he verily believes himself to be the original and first inventor of the improvement in cutting plyers described in the foregoing specification; that he does not know or believe that the same was ever before known or used, and that he is a citizen of the United States and a resident of Milford, Conn., and that the invention described and claimed in the annexed specification has not been patented to him or with his knowledge or consent in any foreign country.

MOSES C. JOHNSON.

Sworn to and subscribed before me this 29th day of May, 1880.
[L. S.] SAM'L LLOYD,
Notary Public.

[Endorsed:] 10971. Patent Office, U. S. A., June 12, 1880.

39 10971. Room No. 103.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *June* 12, 1880.

Moses C. Johnson, care Crosby & Gregory, Boston, Mass.

Cutting pliers. June 2, 1880.

Claim 1 is rejected on H. L. Howard, April 19, 1870, #102,006; J. D. King, Dec. 8, 1874, #157,610; J. H. Gee, May 18, 1880, #227,684.

Claim 2 is rejected on F. C. Leypoldt, #202,446, April 16, 1878, reissued May 13, 1879, #8714, and J. Hellwig, Mar. 6, 1877, #188,133, all these references being in metal-marking tools, rod and bolt cutters.

S. W. STOCKING, *Examiner*,
Per WHITTLESEY, 3*d Ass't.*

[Endorsed:] 10971. Rej. June 12, '80. 1.

40 JUNE 22*d*, 1880.

Hon. Commissioner of Patents.

SIR: Please recognize W. H. Finckel, of Washington, D. C., as our associate in the matter of the application of Moses C. Johnson for cutting plyers, filed June 2d, 1880.

Very respectfully, CROSBY & GREGORY,
Attorney-for Moses C. Johnson.

Case in room No. 103.
" No. 10971.

[Endorsed:] 10971. Patent Office, U. S. A., July 1, 1880.

41 WASHINGTON, D. C., *July* 3, 1880.

Hon. Com'r of Patents.

SIR: I amend the application of Moses C. Johnson for a patent for cutting plyers, filed June 2, 1880, No. 10971, as follows, viz:

Page 2, line 27, substitute " the " for " that," and after " patent " insert " above referred to."

Page 3, line 5, erase " the;" and, line 6, erase " upper;" line 25, substitute " preventing " for " prevents."

Erase claims 1 and 2 and insert instead—

" 1st. In cutting plyers the combination, substantially as set forth, of the body, the independently movable jaw-levers pivoted thereon, the hand levers, also pivoted on said body; the short ends *g' h'* on said hand levers to bear against and turn the jaw levers to close their cutting edges together, and the prong *m* on one of said hand levers made to enter a notch in the other hand lever, the said prong always remaining in engagement with the said notch in all positions of the hand and jaw levers, all as and for the purpose described.

Canceled Sept. 3, '80.

42

" 2nd. In cutting plyers the combination, substantially as set forth, of the body and its two independently movable jaw levers pivoted thereon on separate fulcra, the lips *e* on said jaw levers, and a V-shaped spring, interposed between said jaws to separate the cutting edges, the said lips serving to prevent the pieces cut off by the plyers from entering between the jaw levers and spring, as and for the purpose specified."

As to the references for claim 1, King shows only what applicant has disclaimed, viz., the geared jaws; and these jaws are not independently movable. Howard shows the hand levers connected to the jaws by links, and does not show independence of movement nor the prong and notch. In Gee the jaws and hand levers are pivoted together, and it does not show the prong and

43

Words and sentences enclosed between rules erased in original.

notch. None of the references show the ends of the hand levers arranged to move the jaws by simple contact engagement, but are all positively and fixedly connected therewith.

As to claim 2, Hellwig shows the jaws A A′ with their intervening space covered by a washer, S, but without a spring, and Leypoldt shows one cutter provided with a tongue, *m*, and a spring, but neither shows the specifically claimed lips of applicant's construction.

It seems to me that these are material points of difference and entitle applicant to his reconstructed claims.

Very respectfully, WM. H. FINCKEL, *Asso. Att'y.*

[Endorsed:] 10971. Am'd't July 3, '80. Patent Office, U. S. A., July 3, 1880. 2.

44 10971. Room No. 103.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *July* 10, 1880.

Moses C. Johnson, care W. H. Finckel, present.

Cutting plyers. June 2, 1880.

The amended claims 1 and 2 are substantially a repetition of original claims 1 and 2, and are rejected a second time on the same references and reasons. The differences which appear are not productive of any new or improved result and are held to constitute no patentable improvement. Claim 3 is thought to fully cover the invention.

S. W. STOCKING, *Examiner*,
Per WHITTLESEY, 3*d Ass't.*

[Endorsed:] 10971. Rej. July 10, '80. 3.

45 WASHINGTON, D. C., *July* 14, 1880.

Hon. Comm'r of Patents.

SIR: In the matter of the application of Moses C. Johnson for a patent for cutting plyers, filed June 2, 1880, No. 10971, I fear that either I have misunderstood the references or the hon. examiner's view of their pertinency, or that the hon. examiner, with all due deference to him, has an erroneous conception of their value. Before filing the amendment of July 3d I carefully examined the patents cited and concluded that applicant was entitled to the claims presented, but upon receipt of your honor's letter of the 10th inst. I thought possibly that I was in error or that I did not quite appreciate the value of the references cited. I have accordingly again read the specifications of these references and am quite sure that I am right in asking for claims 1 and 2 and in considering patentable the invention thereby covered. Permit me to call your honor's attention to a few facts with regard to these references:

46 Howard shows the jaws connected to the handles positively and fixedly. There is no contact of the handles; or, in other words, there is nothing equivalent to the prong and notch. I don't suppose your honor will question the wide differences of arrangement. Now, Howard, omitting the above-specified elements of the prong and notch and the mere contact connection of the jaws and handles, and having his parts so differently arranged, certainly cannot be considered an anticipation of applicant's invention. King shows the connection of the jaw by gearing, which construction applicant has disclaimed. I do not think this reference will be insisted upon. Gee.—The faces G G must be considered substantial equivalents of applicant's notch and prong in order that this reference may be adjudged pertinent; but this cannot be, since the prong and notch form a fixed fulcrum, while the faces G G present a constantly shifting fulcrum. Aside from this, however, the
47 jaws and handles are positively, rigidly, and fixedly connected. Hellwig's seems to me to be the best general reference, but it differs from applicant's pliers, since Hellwig's jaws, A A′, are fixedly connected to the handle C C′ by ball-and-socket joints. Hellwig hasn't the prong and notch. He does not show the lips *e*, and of the washer *f* he says: "By the action of the washer *f* neither of the jaws A A′ is permitted to move alone or independently of the other."

It (washer *f*) has no function with regard to keeping out the cut-off pieces of metal, and there is no spring. Leypoldt has only one lip, *m*, and he says that this is a "steadying" device, and projects into the slot in arm B, but does not prevent the cut-off stuff from entering the space behind the cutting edges.

From this showing of the references, obtained from the references themselves, I must beg leave to differ with the hon. examiner in his conclusions. I am clearly of the opinion that these differ-
48 ences are decidedly material, involving invention of merit and high order, productive of a new mode of operation and new results, securing independence of movement of the jaws and great strength and durability, not at the expense of simplicity, but, on the contrary, embodying in a high degree the exalted merit of simplicity.

I do not captiously, nor with a desire to burden your honor, ask reconsideration of your former action, but I am impelled by a sense of the merit of this invention to ask your considerate and careful attention to the above statement, in the full belief that applicant is entitled to his 1st and 2nd claims.

Very respectfully, WM. H. FINCKEL,
Asso. Att'y.

[Endorsed] 10971. App't's letter, July 14, '80. Patent Office, U. S. A., July 14, 1880. 4.

49 10971. Room No. 103.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *July* 15, 1880.

M. C. Johnson, care W. H. Finckle, present.

Cutting pliers. June 2, 1880.

The first and second claims are a second time rejected on the same references and reasons, and the case is in condition for appeal on the merits.

S. W. STOCKING, *Examiner*,
Per WHITTLESEY, 3*d Ass't.*

[Endorsed:] 10971. 2 rej., July 15, '80. 5.

50 WASHINGTON, D. C., *Sept.* 3, 1880.

Hon. Com'r of Patents.

SIR: I amend the application of Moses C. Johnson for a patent for cutting plyers, filed June 2, 1880, No. 10971, as follows, viz:

Numbered page 2, line 19, substitute "of the objects" for "part."

"A." Insert on page 2. Last line of said page add—"My invention consists in the combination and arrangement of parts for effecting these ends, as hereinafter specified and claimed."

Erase claims 1 and 2, and "3rd" before the claim so designated.

Respectfully submitted,

WM. H. FINCKEL, *Asso. Att'y.*

[Endorsed:] 10971. Amendment. Sept. 3, '80. "A." Patent Office, U. S. A., Sept. 3, 1880. 8.

51 Room No. 103. (Interference.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *June* 4, 1881.

U. S. Patent Office, June 7, 1881. Ex'r of interferences.

M. C. Johnson, care Crosby & Gregory, Boston, Mass.:

Please find below a copy of a communication from the examiner concerning your patent, #232,975, Oct. 5, 1880, cutting pliers. Appl. filed June 2, 1880.

Very respectfully, E. M. MARBLE,
Commissioner of Patents.

Room No. 103.

Your case, above referred to, is adjudged to interfere with another, hereafter specified, and the question of priority will be determined in conformity with the rules.

The statement demanded by rule 105 must be sealed up and filed on or before the 7th day of July, 1881, with the subject of the invention and name of party filing it indorsed on the
52 envelope. The other party involved in the interference is Thos. G. Hall, Milford, Conn., appl. #31902, for nippers, April 27, 1881; F. A. Prescott, Riggs House, Wash'n, D. C., att'y.

The subject-matter of the interference is:

The body composed of the side plates, the independent fulcra for the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips, and the hand-levers having short arms, and a prong and notch always in engagement, combined with the V-shaped spring, held by the lips of the jaw levers, being your claim and also that of Hall.

S. W. STOCKING, *Examiner.*
WHITTLESEY, 2*d Ass't.*

[Endorsed:] 10971. X. June 4, '81. 7.

53 Room No. 103. (Interference.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *June* 4, 1881.

U. S. Patent Office, June 7, 1881. Ex'r of interferences.

Moses C. Johnson, Milford, Conn.:

Please find below a copy of a communication from the examiner concerning your patent, #232,975, Oct. 5, 1880, cutting pliers, appl. filed June 2, 1880.

Very respectfully, E. M. MARBLE,
Commissioner of Patents.

Room No. 103.

Your case, above referred to, is adjudged to interfere with another, hereafter specified, and the question of priority will be determined in conformity with the rules.

The statement demanded by rule 105 must be sealed up and filed on or before the 7th day of July, 1881, with the subject of the
54 invention and name of party filing it indorsed on the envelope. The other party involved in the interference is Thos. G. Hall, Milford, Conn., appl. #31902, nippers, April 27, 1881; F. A. Prescott, Riggs House, Washington, D. C., att'y.

The subject-matter of the interference is:

The body composed of the side plates, the independent fulcra for the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips, and the hand levers having short arms, and a prong and notch always in engagement, combined with the

V-shaped spring held by the lips of the jaw levers, being your claim and also that of Hall.

S. W. STOCKING, *Examiner.*
WHITTLESEY, 2*d Ass't.*

[Endorsed:] 10971. X. June 4, '81. 9.

55 *Power of Attorney.*

Know all men by these presents that I, Moses C. Johnson, do hereby constitute and appoint Theodore G. Ellis, of Hartford, Connecticut, my true and lawful attorney to transact for me all business with the United States Patent Office relating to the interference between my patent, No. 232,975, dated Oct. 5, 1880, for cutting pliers, and the application of Thomas G. Hall for a similar invention, filed April 27, 1881, with full power to appoint such other person in his stead as he may deem expedient.

In witness whereof I have hereto set my hand this 28th day of June, 1881.

MOSES C. JOHNSON.

The undersigned, assignee of M. C. Johnson in the matter of letters patent for cutting pliers, No. 232,975, hereby unites with the inventor in granting the above power of attorney.

HENRY G. THOMPSON.

[Endorsed:] Power of att'y to Theo. G. Ellis. 4. Patent Office, U. S. A., June 30, 1881.

56 Hon'ble Commissioner of Patents:

I hereby appoint W. H. Finckel, of Washington, D. C., as my attorney to act for me in the matter of the interference — Hall *vs.* Johnson.

Boston, Jan. 10, 1883.

HENRY G. THOMPSON.

[Endorsed:] Power of att'y to W. H. Finckel. Patent Office, U. S. A., Jan. 12, 1883.

57 *Memorandum of Fee Paid at U. S. Patent Office.*

$20 ch'k.
Inventor, M. C. Johnson.
Patent to be issued to self.
Name of invention as allowed, cutting plyers.
Date of payment, Sept. 14, '80.
Fee, $20.
Solicitor-, Crosby & Gregory.
Date of circular of allowance, Sept. 7, '80.
Send patent to C. & G.

58 781. 10971. 1880. Stocking. Div. 4.

No. 232,975.

Moses C. Johnson,

Ass'or to Henry G. Thompson, of same place,

Of Milford,
County of New Haven,
State of Connecticut.
Cutting pliers.
Rec'd June 2, 1880.
Petition, " "
Affidavit, " "
Specification, " "
Drawing, " "
Model not required. June 12, '80. S. W. Stocking.
Cert. dep., —.
1. Cash, $15, June 2, 1880.
Add'l fee cert., —.
1. " " cash, $20, Sept. 16, 1880.
Examined Sept. 4, 1880. S. W. Stocking.
Issue, Sept. 6, 1880. F. S. Evans.
Patented October 5, 1880.
3. Circular, Sept. 7, 1880.
W. H. Finckel present.
Crosby & Gregory, Boston, Mass.

59 1880.

Contents. D.

Application papers.
1. Rej. June 12, '80.
2. Am'd't, July 3, '80.
3. Rej. July 10, '80.
4. App't's letter, July 14, '80.
5. Rej. 2d, July 15, '80.
6. Appeal to B., July 28, '80.
7. Grounds of decision, July 28, '80.
8. Examiner affirmed Aug. 25, '80.
9. Am'd't, Sept. 3, '80.
10. X with appl. # 31902, June 4, '81.
11. X in favor patent 232,975 by the Hon. Sec't'y Int., M'ch 13th, 1884.
12.
13.
14.
15.
16.

17.
18.
Title: Improvement in cutting pliers.
140 wire working tools.
Ex'd: E. A. M., H. M. H.

[Endorsed:] 6951. D. '84.

60 UNITED STATES PATENT OFFICE.

MOSES C. JOHNSON, of Milford, Connecticut, assignor to Henry G. Thompson, of same place.

Cutting-Pliers.

Specification forming part of Letters Patent No. 232,975, dated October 5, 1880; application filed June 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, Moses C. Johnson, of Milford, county of New Haven, State of Connecticut, have invented an improvement in cutting-pliers, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to cutting-pliers, and is an improvement on that class of pliers represented in United States patent No. 209,677, dated November 5, 1878, granted to T. G. Hall, to which reference may be had. In that invention either of the two hand-levers may be turned on its pivot without turning the other, and the tool-body formed by the face or covering plates is permitted to vibrate or turns more or less with relation to the handles, and the central space between the cutting-faces of the jaw-levers, when the pliers are taken in the hand to be used, drops more or less out of line with the central line of the handles, making, as it were, a loose joint midway between the ends of the pliers.

One of the objects of my invention is to construct a stiff pair of pliers, or pliers in which the hand and jaw levers shall each be compelled to move positively in an opposite direction to the movement of its fellow, or a pair of pliers in which the tool-body shall not of itself swing or vibrate upon the pins or studs holding the hand-levers.

In the patent above referred to the end of wire or other thing cut off by the cutters drops into and injures the spring that opens the jaw-levers. This I obviate by providing each jaw-lever with a lip to cover or bridge the space between the jaws as the jaw-levers are closed.

My invention consists in the combination and arrangement of parts for effecting these ends, as hereinafter specified and claimed.

Figure 1 represents, in side elevation, a pair of cutting-pliers containing my improvements; and Fig. 2, a like view with one of the body or side plates removed.

The body of the pliers is composed of two side plates, *a b*. These side plates are fixed together by the screws 2 3 4 5. Of these screws,

those 2 3 serve as a fulcra of the jaw-levers *c d*, having at their ends the usual cutters or cutting-surfaces *c' d'*. Each of these jaw-levers has a lip, *l*, and the end of one meets the end of the other lip just as or just before the two cutting-edges *c' d'* separate the wire or other metal end to be cut off by them, thus closing the space between the said jaw-levers and side plates, in which is placed the spring *f*, and preventing the entrance into said space of hard pieces of wire or other articles that would clog the pliers. These lips also serve another essential purpose—viz., that of holding the ends of the spring from displacement and oviating the employment of a separate pin or stud to hold the said spring at one end, as heretofore common.

The screws 4 5 serve as the fulcra for the hand-levers *g h*, having short arms *g' h'*, to act upon the ends of the longer arms of the jaw-levers and turn them on their fulcra to close the jaws and bring the cutting-edges together. The spring *f* opens the jaws the instant the clasping pressure on the hand-levers is relaxed.

In order to move the jaw-levers equally at all times and prevent the jaw-levers and body of the pliers turning on the handles, I have provided one hand-lever with a prong, *m*, having a rounded end that enters a rounded notch in the opposite lever. This one prong and its notch are always in engagement, and so connect the two levers that the body of the pliers cannot vibrate on the screws 4 5, but, on the contrary, the two levers may turn each on its own pivot, both levers always turning the same distance, but in exactly opposite directions. This connection between the two hand-levers, as described, insures a stiff pair of pliers, that can be handled more readily and accurately than the old form of cutting-pliers referred to, and which are more positive as to the movement of the cutting-jaws.

I am aware, in bolt-cutters, where the short ends of the hand-levers are jointed with the long ends of the cutting jaw-levers, that a series of teeth or cogs have been interposed to cause the hand-levers to be geared together; but in such bolt-cutters one single tooth and notch would not operate to always keep the two
61 hand-levers locked together as to their movement in unison, as is the case with my one prong, *m*, rounded at its end and inserted within a rounded notch.

I claim—

The body composed of the side plates, *a b*, the independent fulcra 2 3 4 5 for the jaw-levers and hand-levers, the jaw-levers provided with cutting-edges and with lips *e*, and the hand-levers having short arms *g' h'*, and a prong and notch always in engagement, as described, combined with the V-shaped spring, held, as described, by lips of the jaw-levers, all as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MOSES C. JOHNSON.

(No Model.)

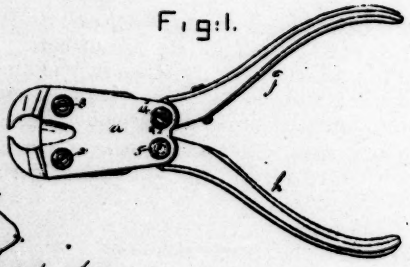
M. C. JOHNSON.
Cutting Pliers.

62

No. 232.975.

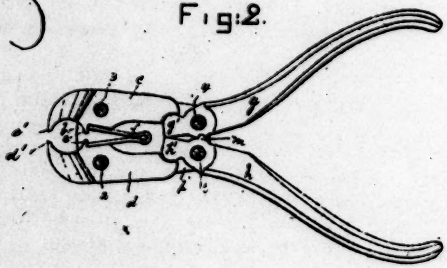
Patented Oct. 5, 1880.

Fig: 1.



No. 186.
Thompson
v.
Walldal.
p 62

Fig: 2.



WITNESSES.
A. Reynolds
L. J. Connor.

INVENTOR.
Moses C. Johnson.
by Crosby Gregory
Atty's

Witnesses:
SAM'L LLOYD.
GEO. E. FRISBIE.

(Here follows diagram marked page 62.)

63 DEFENDANTS' EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

64 DEFENDANTS' EXHIBIT DECISION OF EXAMINERS-IN-CHIEF.
J. E. B. Sp. Ex'r. 6 June, 1884.

THOMPSON *vs.* HALL.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the decision of the examiners-in-chief in the matter of the interference, Thomas G. Hall *vs.* Moses C. Johnson, for improvement in nippers.

In testimony whereof I, R. G. Dyrenforth, act'g Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 2d day of June, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

R. G. DYRENFORTH,
Act'g Commissioner.

65 No. 7463.

U. S. PATENT OFFICE, *Oct. 3rd*, 1882.

Before the examiners-in-chief on appeal.

In the matter of the interference between the application of Thomas G. Hall, filed April 27, 1881, and the patent to Moses C. Johnson, No. 232,975, granted October 5, 1880.

Improvement in nippers.

The matter in interference is as follows:

"The body composed of the side plates, the independent fulcra for the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips, and the hand levers having short arms, and a prong and notch always in engagement, combined with the V-shaped spring held by the lips of the jaw levers."

This is substantially the claim of Johnson, but conveys but a vague idea of the real points of the case. The controversy is
66 really over two elements added to a nipper for which Hall had previously obtained a patent. The elements added to that nipper, which is called the "Hall nipper," consist of a gear connection betwen the handles of the nipper and of lips or projections over the head of the spring to keep it in place.

There is some doubt in our minds regarding the unity of invention here, as to whether the gear connection and the projections over the head of the spring can be said to have any necessary relation to each other or be in combination, inasmuch as they seem to be distinct features applicable separately to nippers; and, furthermore, the gear connection seems, it is suggested, to be old, but since the features have been conjoined in a claim and one of the parties has obtained a patent, and the issue has been so made up, we will consider the case as presented.

The questions before us, then, are these:

First. Who originated and first applied the cog connection between the handles of the Hall nipper?

67 Second. Who originated and first applied the lips or projections over the head of the spring to hold it in position?

The nipper is manufactured by the Interchangeable Tool Company, of which Hall was and is president. Johnson was a workman in the employ of that company.

The history of the invention of this case, as it appears by the evidence, is this: On May 14th, 1867, Thomas G. Hall obtained a patent for a cutting nipper, appearing in this case as Exhibit No. 6. Of this nipper he manufactured and sold forty to fifty thousand, and discontinued its manufacture in 1874 or 1875. (Hall, QQ. 153 to 156, pp. 28, 29.)

On November 5th, 1878, he obtained a patent for an improvement on this nipper. (Hall, Q. 2, p. 4.)

This patent appears in evidence as Exhibit No. 7, and it has all

the parts and combinations of parts contained in the nipper patented to Johnson, excepting the gear connection between the handles and the lip over the head of the spring.

68 In August, 1878, before the patent was granted, the Interchangeable Tool Company was organized for the purpose of manufacturing this nipper. (Judge, fol. 172, p. 43.)

But before the company was organized the parties in interest employed one Robert W. Crane to make models of the nipper, a shop being hired in Brooklyn, in which Mr. Hall and Mr. Crane went to work making experiments upon his nipper, it being then understood that the nipper was imperfect, in that its jaws did not move together uniformly. The work on the nipper was prosecuted in this shop in Brooklyn until late in the summer or early in the fall of 1878, when a shop was taken in Harlem, New York, in which Hall and Crane continued to work on the nipper, avowedly for the purpose of perfecting it. (Fol's 172 to 174, Q. 2.)

Hall swore, in answer to Q. 12 (p. 6) of his examination-in-chief, that in the year 1877 he experimented with a spur in one handle of the nipper and a notch in the other, and that afterwards he explained the same thing to Robert W. Crane, the foreman of

69 the shop in Harlem.

And in answer to ques. 7, — 13, this same Crane swears that Hall showed him his plan of connecting the two handles, with a spur in one handle and a hole or notch in the other, about September 13th or 20th, 1878.

Hall also swore in answer to Q. 12 (p. 6) that he showed or explained the same thing to Mr. William Q. Judge and Mr. J. F. Oliver in March, 1879, and that Judge at the same time made a drawing or sketch of it at his request. Judge, in answer to QQ. 21 and 24, recollects making such a sketch of the invention for Hall in the fall of 1878 and the spring of 1879, and produces one of the sketches, but cannot fix the date when this particular sketch was made.

This sketch appears in evidence as Exhibit No. 9.

Judge also recollects hearing Hall and Crane talking about the "spurs" in the handle of the nipper before Christmas, 1878, in the shop at Harlem.

Hall, in answer to QQ. 12 to 19 of his examination-in-

70 chief, swore to a conversation between himself, William Q. Judge, J. F. Oliver, and a Mr. Curtis about the Kennedy nipper (Exhibit No. 2) and about putting the gear between the handles of the Hall nipper.

Mr. Judge (fols. 176, 177, pp. 44, 45) swears to the same conversation, and Mr. Oliver (Q. 8) corroborates them in every particular.

But Mr. Judge fixes the conversation in the fall of 1878, whereas Hall and Oliver fix it in March, 1879. (Oliver, Q. 28.)

And Crane also swears (Q. 13) that his conversation with Hall about the pin gearing between the handles took place in September, 1878.

And Mr. Oliver, in Q. 8 (see *supra*), distinctly states that at the conversation between himself, Hall, Judge, and Curtis, in March,

1879, Mr. Judge, at the request of Hall, made a sketch of the Hall nipper, showing the gearing between the handles. All four of these witnesses—Hall, Judge, Oliver, and Crane—in answer to the questions cited, swore positively to these facts, and their testimony is sufficient to settle the fact that as early as March, 1879,
71 Hall had a perfect conception of that part of the invention, which consists in connecting the handles of his nipper with a cog gearing; and the testimony also shows that Hall and all these witnesses were aware of the imperfection of the nipper as patented, and that Hall was at work correcting and perfecting it.

Now, Johnson did not go into the employ of the Interchangeable Tool Company until April 20th, 1879. (Johnson, Q. 19.)

So that it is certainly established that Hall had the idea of the gearing between the handles of his nipper worked out in his mind at least one whole month before Johnson went into the employ of the company. All that remained to be done was to put it in the hands of a workman with directions to make it, and this Hall actually did, as will appear, after we have considered the question of the lips over the head of the spring.

Let us see what was done by Hall in putting the lip over the spring before he and Johnson came together.

72 Hall, upon his examination-in-chief, produced a pair of nipper jaws, and they were put in evidence as Exhibit No. 4. These jaws Hall says (Q. 33) he made at the company's shop, in Hudson street, in the fore part of January, 1879.

And in answer to QQ. 28 to 30 he says that in that nipper he used the same method of putting in the spring that appeared in Johnson's patent, and he especially referred to lines 35, 36, and 37, and also lines 50 to 61 of Johnson's patent as describing and designating the same thing that he used between the jaws of Exhibit No. 4, in January, 1879.

The V-shaped spring in that nipper, he says in answer to Q. 38, was first held by a brass block secured to the side plate, but this block was dispensed with when the notch was cut in the jaw, and the spring put in loose, as it now appears in Johnson's patent.

Upon his cross-examination Hall again swears that he made the jaws, Exhibit No. 4, in January, 1879, in which he cut the
73 notches to receive and hold the upper ends of the spring. It is true that the notches in these jaws in which the upper ends of the spring were set are not so deep as in the patent of Johnson's, but they are in precisely the same place and were used for precisely the same purpose, and are sufficient to show the plan of the invention. The making of this spring seat or notch a sixteenth of an inch, more or less, deeper, so as to make the lip a trifle longer, is not invention; and, moreover, to make the lip long enough the die in which the jaw forgings were made had to be altered so as to have metal enough under the throat of the nipper to obtain a lip of the desired length over the head of the spring, and this change of the jaw forging was made after Hall had made his experiments with the jaws, Exhibit No. 4, for this very purpose, as will presently appear.

The witness, Judge, swears positively (p. 44, f. 173) that to his

personal knowledge Hall made experiments in the fall of 1878 in the shop in Harlem for the purpose of perfecting the motion
74 of the jaws and the mode of retaining the V-shaped spring between the jaws; that the V-shaped spring was made in that shop and used in the Hall nipper—first without the brass tit, then with it, and then again without it.

Now, the V-shaped spring could not be held between the jaws of the nipper without the brass tit or its equivalent, unless a seat was cut for it, as in the patent to Johnson, and it does not appear that any equivalent was used for the brass tit.

This testimony of Hall and Judge shows that Hall had the idea of holding the spring between the jaws by cutting a notch or seat below the throat of the jaws, forming a projection or seat over the head of the spring, to keep it from working up out of its position, as it appears in the patent to Johnson certainly as early as January, 1879. Hall produces a pair of nipper jaws (Exhibit No. 4) showing the notch and lip to hold the head of the spring, which he swears he made and experimented with in January, 1879.

75 It is not contended that these jaws show the invention of the spring seat and lips over the head of the spring in as completed a form as it appears in the perfected nipper manufactured by the company or as it appears in Johnson's patent, but it is contended that the jaws show that Hall had the idea and had taken steps to reduce it to practice by actual, although imperfect, embodiment, and that he did afterwards cause it to be embodied in the perfect form it appears in Johnson's patent. It is to be borne in mind that Hall does not claim to have made the perfected nipper with his own hands, but he claims that he invented the improvements and caused them to be embodied in his nipper by men employed by him or his company to do the work after his direction.

It has been shown, then, that Hall had both improvements, viz., the gearing between the handle and the lip over the head of the spring, worked out in a rude way, but sufficient to illustrate them to a workman, as early as January, 1879, and it is conceded
76 that the workman selected to make the model nipper and embody in it the improvements of Hall was Moses C. Johnson, the other party to this interference.

Let us see, now, how and when Hall and Johnson came together and what their subsequent relations were:

Johnson swears (Q. 4) that he went into the employ of J. H. Jencks & Co. in the early part of October, 1878, and remained in their employ until about the first of February, 1879.

And in answer to Q. 6 he says that his principal occupation while in the employ of Jencks & Co. was, first, making a printing press for Samuel Crump, and after that making a model nipper for the Interchangeable Tool Company, under the direction of Thomas G. Hall.

In answer to X Q. 231 he says he first met Thomas G. Hall at the shop of Jencks & Co. in January, 1879, and in answer to X Q. 241 he says he commenced to make the model nipper for Hall in January, 1879. (Johnson, X Q. 245.)

77 And in answer to Q. 8 Johnson swears that that model was like the nipper shown by the circular, Johnson Exhibit A.

In this Johnson is apparently in error, for the circular, Exhibit A, shows the nipper just as it was before he made the model at the shop of Jencks & Co. and as it appears in the patent of November 5, 1878. Surely the company would not have a model nipper made precisely like the one they had been manufacturing. The circumstance in itself is strong presumptive evidence that Johnson's statement that the Jencks model nipper was like the circular, Exhibit A, is not true.

But we must bear in mind that it was in January, 1879, that Hall, in the shop in Hudson street, cut notches in the jaws, Exhibit No. 4, and experimented with the spring in those notches between the jaws. This was at the very time that Johnson was making the model nipper at Jencks & Co.'s shop, and if there were no positive testimony on this point it would not be unfair to assume that Hall directed Johnson to put the spring in the new model to carry out the idea of his experiments, with the notch and spring be-
78 tween the jaws of Exhibit No. 4; but we have Johnson's testimony to show that he made the Jencks model nipper under the direction of Hall, and we have the most positive testimony to show that in that model the spring was set in a seat cut below the throat of the nipper and having the lips over its upper end precisely as in the Johnson patent.

Mr. Hall, in giving his testimony in rebuttal (Q. 21 to 25, p. 121), swears most positively that the spring in the Jencks model nipper was put in with the lip over the upper end, precisely as now manufactured by the company.

This testimony of Hall was objected to as not being rebutting testimony, but we think it is correctly so. Hall could not contradict or rebut Johnson's testimony before Johnson had testified. Johnson swore that the Jencks model nipper was like Exhibit A, and he, Hall, certainly had a right to contradict him if he could.

The witness Judge, in answer to Q's 11 to 13 (p. 50), says that the model Johnson made while at Jenks & Co.'- differed from the Exhibit No. 8 in that it did not have the pin across the throat nor the brass tit to hold the spring.

79 But if the spring was not held by the brass tit, how was it held? Johnson's circular, A, shows the brass tit. The spring must have been held by the brass tit or by the lips over its upper ends, for it had to be held in some way. The witness Judge does not say how it was held. Johnson says it was held by the brass tit. Judge says it was not, and Hall swears, in answer to Johnson, that the spring was put in the Jencks model nipper precisely as in Johnson's model C.

Hall and the witness Oliver swore positively that the model nipper from which all the company's templates and milling tools were made consisted of the model made by Johnson while at Jencks & Co.'-, altered by Johnson after he came into the employ of the Interchangeable Tool Company, and that the alteration consisted of dovetailing a piece of metal on the inside of each handle, into which the

cog connection was made between the handles; and they both swore that that was the only alteration made by Johnson of the Jencks model after he came to work for the Interchangeable Tool
80 Company. (Testimony of Oliver, p. 61, Q. 20 to 25; testimony of Hall, Q. 19, p. 120.)

Johnson swears positively (X Q. 262) that he did not alter the Jencks model nipper after he went into the employ of the tool company, but he admits (X Q. 281) that the Jencks model had a V-shaped spring set in correspondingly-shaped seats under the throat in notches which he says were made at his suggestion; but he says that there were no lips over the head of the spring that came together as in Exhibit C.

Now, it is not claimed that the lips over the head of the spring in the Jencks model nipper as originally made were long enough to come together. They could not be made long enough to come together because there was not stock enough in the old forgings of which that nipper was made to make the lips long enough to come together, but the lips were sufficiently long to lap over the head of the spring far enough to hold it in position, and that is all that is contended for. Johnson, on his examination-in-chief (Q. 8), swore that the model he made at Jencks & Co.'s was an exact dupli-
81 cate of the nipper shown by the circular, Exhibit A (see *supra*); but if it were an exact duplicate of the nipper shown by the circular, then it certainly did not have the spring set in the notches under the throat of the nipper. In the circular the spring is held by the brass tit. If the spring was held by the brass tit, why did Johnson suggest the notches? What could the notches be for if the spring was held by the tit? In that case the notches would be utterly useless if not disadvantageous. Gustam, in answer to Q. 13, thinks the brass tit was not in the Jencks model, as originally made.

The testimony cited proves that the spring in the model nipper made by Johnson under Hall's direction, at the works of J. H. Jencks & Co., had the V-shaped spring between the jaws in the same relation and with the projection or lip over its upper end, as it appears in Exhibit C, the only difference being that the lip over the end of the spring in the Jencks model was shorter on account of the deficiency of metal in the forging. Now, if Johnson made this nipper under the direction of Hall, as he says he did, then surely the placing of the spring in a suitable seat below the throat of the nipper and with a projection over its upper end was the invention of Hall and not of Johnson.

82 This, then, was the condition of the invention on Hall's part at the time Johnson went into the emply of the Interchangeable Tool Co. We will now look at what was done by the parties after Johnson went into the employ of the tool company.

It appears by the testimony that the company only manufactured a few of the nippers, as shown by the patent of November 5, 1878, or like Exhibit No. 8. Previous to the month of January, 1879, there were about six dozen of this nipper made at the company's shop in Harlem, and previous to the month of March, 1879, there was about

the same number made at the shop in Hudson street. (Hall, X Q. 101.)

The nipper was not satisfactory and it was determined to improve it before putting it on the market. It was in March that Hall, Judge, Oliver, and Curtis had their conversation at the office of Judge about putting the cog connection between the handles of the nipper—a conversation that was brought about by Curtis, who was trying to sell them the Kennedy nipper. It was then suggested that the experiment of putting the cog connection between the handles be tried at the company's shop in Hudson street. (Hall, Q's 12 to 19.)

83 This was in March, 1879. On the 14th of April, 1879, James M. Adams was employed as foreman of the company's shop (Adams, Q. 2), and on April 20th, 1879, Johnson was employed. (Johnson, Q. 19.)

Now, the first thing that was done at the works of the company toward practically applying the cog connection between the handles of the nipper was putting the pins in the handles opposite the fulcra to make the gear connection as in Exhibits No. 3, 16, and 20 (Hall, Q. 116, p. 24), and Hall says that was done in the fore part of May, 1879.

And the next step, he says, that was taken was to make brass templates showing the cogs between the handle. (Hall, Q. 119.)

And that those templates showed the cog connection between the handles precisely as in the patent to Johnson, and that Johnson made the templates in the fore part of May, immediately after the experiment of inserting the pins in the handles (Hall, Q's 120 to 122). Judge also swore to the insertion of the pin by Adams as the first practical step taken toward perfecting the invention. (Judge, fols. 184, 187.)

Adams, QQ. 306–312, corroborates the statements of Judge and Hall that the pin gearing between the handles was the first practical step taken towards gearing the handles together. He

84 will not admit that he got any suggestion from any one, but wants it understood that it was his own conception, as subsequently appears, but this establishes the simple fact that the pin gearing was the first practical application of the cog gearing. Johnson swears that model, Exhibit C, was the first practical embodiment of the invention, and that he made it. Adams swears that model D was made before model C, and that he made it and gave it to Johnson to make model C after.

The testimony of Johnson upon the subject of the pin gearing is found on page 40 (X Q. 345), from which it will be seen that Johnson recollects the experiment with the pin gearing, but he will not admit that it was made before the model C, nor will he swear that it was not. He could not explain why that experiment should be made after model C was made.

Mr. Whittlesey's testimony about this pin gearing (X Q. 67 to 75, p. 118) shows that this witness thought the idea came from Hall, and that there was a number of these experiments made, and it is surely unreasonable and against the weight of evidence to say that these experiments with the pins were made after the completion of

model C. That exhibit shows the invention completed, and
.85 the idea of making the rude experiments with the pins in the handles after the invention was completed is utterly incredible.

Now, neither Johnson nor Adams claims to have invented the pin gearing, and it seems clear that the pin gearing was the first practical step taken towards gearing the handles of the nipper; that the pin is substantially the same as the cog, and that the suggestions of putting in the pins came from Hall to Adams.

The next step taken towards perfecting the gearing was, as Hall swears (Q. 119, p. 24), the making of brass templates showing the working of the gear connection, and Hall's testimony on this point agrees with Adams' and Johnson's.

Hall says (Q. 122) that these templates were made during the fore part of May, 1879.

Adams says (Q. 14) that he made model D about the middle of May, 1879.

In answer to X Q. 233 and 234 he says he had been in the employ of the company about three weeks (from April 14) when he made it, which would make it in the fore part of May, as testified by Hall.

Now, model D is nothing but a brass template of the nipper. It shows the gearing between the handles and the seat for the spring below the throat of the nipper. It really embraces and in-
86 cludes all the invention claimed by Johnson, and it was made, as Adams says, at about the same time that Hall says the templates were made, and it corroborates Hall's recollection of the templates. Whether this model or any part of it was the templates referred to by Hall does not appear, nor is it material. The point is that templates of the improvements were made at that time, and the fact that this model was made at the same time establishes that fact out of the mouths of respondent's witness.

Johnson has sworn that he went into the employ of the tool company on the 20th of April, 1879, and commenced to make model C two or three weeks afterwards, and that he made the brass handles first. (Johnson, X Q. 257 and 259.)

Now, what are the brass handles of model C but mere templates showing the gearing between the handles? Whether these templates were the templates referred to by Hall does not appear, but they are templates, and were made, as Johnson says, about the time Hall says templates were made showing the improvement upon the nipper, and to that extent corroborates the testimony of Hall.

After these brass templates were made and before the nipper was made Johnson made a drawing of the completed nipper. From this drawing the model nipper of the company was made,
87 and this drawing, Hall says, Johnson made at his (Johnson's) house in overtime and was paid for it by the company. The testimony of Hall upon this point is included between Q. 130 and Q. 151, pp. 26, 28.

This drawing, like the model nipper made after it, mysteriously disappeared from the works of the company, and their whereabouts the company has not since been able to discover. Johnson denies

that he made this drawing of the nipper. (Johnson, X Q. 271, p. 31.)

But Adams, in answer to X Q. 342 to 346, pp. 177, 178, recollects that Johnson made a drawing of the nipper in the month of May, 1879, that was like Hall's Exhibit No. 1. He remembers discussing with Johnson the shape of the jaw lever, and points out that he had the jaw lever made straight in the drawing instead of curved, as in the old nipper.

Now, it seems clear from this testimony that this drawing referred to by Adams was the drawing after which the new model was to be made, because the very change that he says he directed to be made in the shape of the jaw lever in that drawing is the very change that was made in the shape of the jaw lever of the nipper, the jaw lever of the old nipper being curved on the inside, whereas that part of the new jaw lever is straight.

Adams is doubtless mistaken as to the identity of the drawing, for the drawing of the No. 1 nipper, Exhibit 1, was not then made, but he certainly was not mistaken about the fact that a drawing was made of the nipper at the time showing the difference between the old and new nipper.

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It is fair to conclude from the testimony of Hall and Adams that Johnson did make a drawing of the improved nipper before the model was made; were it not so there could have been no discussion between Johnson and Adams about making the lower end of the jaw lever straight instead of curved on the inside, as all those points would certainly be decided before the model nipper was made, and the proper place to settle them was in the working drawing after which the model was to be made.

It is perhaps well now to describe the mode of making the nipper, for unless we understand exactly how it is made—that is, how its several parts are produced—we cannot understand the bearing of the circumstantial evidence in the testimony of the witnesses.

The mode of making the nipper, then, is as follows:

First. A nipper is made called the "model nipper." This model is finished in all its parts, proportions, and combinations of parts exactly as the manufactured nipper is to be. Each part is accurately made and carefully fitted together and finished.

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Second. From each of the several parts of this nipper a die is made to correspond in form exactly to the form of the part from which it is made.

Third. In these several steps the respective parts of the nipper are forged in what are called "drop forges"—that is to say, the end of a bar of steel is heated and placed between the dies, the upper one descending and striking out a piece of steel to correspond exactly to the shape of the dies. The pieces of steel thus struck out are called "drop forgings," and they are, of course, all exactly alike. Here it will be observed that before the forgings can be made and before the dies can be made the model nipper must be made, the respective dies being each exactly like the corresponding parts of the nipper.

Fourth. After the dies are made templates are made of the several parts of the model nipper; thus a template is made to fit exactly the

inside of the jaw of the model nipper and one is also made to fit exactly the outside of the same jaw, and templates are also made to fit exactly each handle of the nipper and the cog connection between the handles, the templates being the exact counterparts of the corresponding parts of the model nipper.

Fifth. From the templates the mills are made, being the
90 exact counterparts of the templates of the several parts of the nipper to be milled, and from these templates a "drilling gig" is made to drill the holes in the side plates; so that all the parts of the nipper subsequently made by the company are exactly alike in size and shape, and all the screw holes in the several parts of the nipper are drilled by the "gig" of exactly the same size and in exactly the same relation to each other in all the parts of the nipper.

Sixth. After the mills are made the "milling vice jaws" are made to correspond exactly to the shape of the mills, the office of the milling vice jaws being to hold the forging during the operation of milling. They must be made exactly like the mills, so that the latter can be worked close up to them without striking them. (Whittlesey, X Q. 132, p. 125.)

It will be observed here also that before all these tools can be made the templates must be made, and before the templates can be made the model must be made, the model being the standard by which the templates are continually proved and replaced in the event of their being broken or lost. The model is, therefore, carefully preserved, for, in case the model is lost or stolen and one of the templates is lost or broken, it cannot be replaced without great trouble
and risk of deranging the work; and it is of the greatest
91 importance that the respective parts be made continuously of exactly the same size and shape, a principle that cannot be departed from without destroying the interchangeable system. Thus if you purchase of the company a nipper to-day and break one of its jaws a year hence or five years hence you can send to the company and get a new jaw to replace the broken one by giving only the size or number of the nipper. It will be seen, therefore, that after the company had determined how the nipper was to be made the first thing to be done was to make the model nipper, and it is conceded that Johnson made this model; but it is insisted that all of the improvements were suggested by Hall, Johnson being the paid employee of the company to put in practical and skillful form the suggestions of Hall, who was the president of the company, and who does not pretend to be a skillful workman. All that is claimed for Hall is that he conceived and suggested the invention, and that Johnson and Adams were employed by the company as skillful workmen to practically embody it.

It has been shown that there must be a model nipper. It is conceded that Johnson made that model. Now, upon Johnson's own testimony, what kind of a model did he make and under whose direction?

In answer to Q. 32 he says he first conceived the invention
92 in controversy and made a model of it in the month of May, 1879.

In answer to Q. 40 he says the model was commenced and finished between the 10th and 20th of that month.

In answer to Q. 36 he says that he got the material for the handles from Adams, and in answer to Q. 39 he says he got the material of which he made the other parts of the model out of the refuse material in the shop of the company.

In answer to Q. 35 he says that in the construction of that model he did not get any ideas from any one, but that it was his invention.

In answer to Q. 34 he produces the model, and it is marked Exhibit C.

But this so-called model is nothing but a skeleton, the handles and jaws being merely templates of those parts.

In answer to QQ. 48 to 50 he says that Adams made some experiments towards improving the nipper, consisting of a series of teeth filed in each handle, in the fore part of May, 1879, but that he never saw a working model of these improvments.

In answer to Q. 68 he says that the first completed nipper like model C was made in July, 1879.

In answer to Q. 70 he says that previous to the making of this completed nipper there was no working model made from which to make the tools, but that the tools were constructed by Exhibit C.

93 Now, all of the witnesses agree that the company had its completed nipper on the market in July, 1879. To do that the company had to alter its dies, make its templates, its mills, and milling vice jaws, buy and set its new machinery in operation. The witnesses all agree that the dies were altered. There is no controversy about that fact. The jaw lever was made longer, there was more stock put in below the throat of the jaw to make the lip project over the head of the spring, and the jaw itself was made narrower; but, as we have shown, before the company could alter its dies and make its tools it had to have a model nipper. Johnson says the dies and tools were made by model C, but the die-sinker, Kennelly, who made the dies, in answer to X Q. 35, says he never saw model C until the day he gave his testimony. It will be observed that he recognizes model No. 10 or the No. 2 nipper as the nipper for which he sunk the dies and made the forgings, and that Hall furnished him a complete model nipper by which to alter the dies. Surely, then, the dies were not sunk after Johnson's Exhibit C.

Again, if the templates were made after Exhibit C they would fit exactly; but they do not fit it. The templates are in evidence as Hall's Exhibits "Templates." Hall says (p. 117, Q. 7) that these templates could not have been made after Exhibit C.

94 In answer to X Q. 8 (p. 118) he says that these are the templates by which the jaws of the No. 2 nipper are made. The No. 2 nipper is like Exhibit No. 10.

Pope swears that these templates are the templates by which the company makes the jaws of the No. 2 nipper; that Whittlesey made them; that he is an expert tool-maker; that if they were made after the jaws of Exhibit C they would necessarily fit it exactly. (Pope, Q's 18–24.)

Whittlesey (X Q's 128–131) says that he made the jaw templates of this nipper; that he made the outside templates after the back of the Jencks model nipper, and that he made the templates for the inside of the jaws also after that nipper, but altered it to accommodate the spring and the changes made on the inside of the jaws to correspond with the inside of the model C.

But the template does not fit the inside of model C. It could not therefore have been made after that model. Whittlesey was mistaken.

There cannot be a doubt, however, but that these templates were made after Jencks' model, both on the outside and inside of the jaws, the lips that lap over the end of the spring being made a little longer on the template than in the model, the forgings of which that model was made not having stock enough below the throat to make the lips of the desired length. We must recollect that that
95 model was made from the old forgings before the change in the dies. When the dies were changed more metal was left under the throat of the nipper into which the spring seat was cut.

Now, Johnson swore that he made the Jencks model out of the old forgings, and that there was not material enough in the forgings to make the nipper as it appears in Exhibit C; but Johnson swore also that he made Exhibit C out of the old forgings made before the dies were altered, from old jaws picked up in the company's shop.

In answer to X Q. 251 Johnson says he had to dovetail a piece of metal on the end of the jaw lever of the model that he made of the old forgings at Jencks & Co.'s to make it long enough.

How did it happen that he did not have to dovetail a piece of metal on the end of the jaw lever of model C to get the necessary length? Both models were made from the same forgings, or forgings made in the same dies, and of exactly the same size. Surely if there was not material enough to make the Jencks model there was not material enough to make model C. If the lip over the spring head could not be made long enough in the Jencks model out of the old forging- how could it be made long enough in model C out of the same forgings? And if model C could be made out of the
96 old forgings why did the company go to the expense of $1,000 to have new dies made? Now, there is no piece dovetailed on model C, and there is ample room in that model for the spring seat, and the lip over the end of the spring is of ample length. It was simply impossible to make model C out of the old forgings, and it seems that the jaws of the model have been made after the dies of the company were altered and enlarged, after the templates had been made, after the mills had been made, and after the milling vice jaws had been made; in short, that the model is one made for the purposes of this case.

It may be that Johnson, at the suggestion of Thompson and Gustam, after he had been dismissed by Hall, got a pair of nipper jaws that had been milled on the mills of the company, a pair of jaws that had been through the mills, to test them by, filed off the cheek pieces, and made his so-called model C, using the tem-

97 plates he had made while in the employ of the company, under the direction of Adams, for the handles.

There is not a shadow of doubt that the jaws of this model were milled in the tools of the company. The marks of the mills can be plainly seen on both edges of one of the jaws. Johnson attempts to account for this by saying that he set the mills by the jaws of his model, and that in running the mills over them the marks of the tools were left on them. Now, such a practice as that is unheard of among tool-makers. The idea of taking the several parts of the model nipper and running them under the milling tools while in motion is simply preposterous. How long would a model so used retain its original form and size by which to test the templates? Even if the model were used to set the mills by, what object could there be in putting the mills in motion and running the model
98 under them, so as to take a cut off of it? This must have been done or the marks of the mills would not appear as they do on this model.

Ex'd: E. McK. M. McK.

Whittlesey, upon this point, swears as follows:

175 X Q. Would an expert tool-maker use the several parts of his model to adjust his milling tools by?

A. He might.

176 X Q. Well, is that the practice?

A. I never have, as I remember of.

177 X Q. Did you ever see Johnson do it?

A. Not that I know of.

And in answer to X QQ. 150 and 170 he says it was a part of his duty while in the employ of the company to adjust the milling tools.

Now, Whittlesey is Johnson's witness, and to help his friend answers indefinitely, but he was not willing to put himself on the record in support of such a bold assertion as Johnson had sworn to in explaining the milling tool marks on his model C. Whittlesey was willing to help his friend out, but he was not willing to put himself in a position to be laughed at by the other tool-makers.

The witness Pope, an expert tool-maker, says that no competent tool-maker would use his model to set his mills by, and that he does not believe Johnson would do it. (Pope, QQ. 25 to 28.)
99 Kennelly, also an expert tool maker, swears that any workman that would so use a model would be discharged for incompetency.

The evidence adduced shows beyond doubt that at least the jaws of Exhibit C could not have been the model nipper of the company. The dies were not made after them; the templates were not made after them; they could not be made out of the old forgings.

But if the jaws of this so-called model C were milled on the mills of the company and the mills were made after the templates the jaws ought to fit the templates; and so they would if they were milled exactly like the templates. The mills when first made are exactly like the templates, but sometimes they spring a trifle in

hardening, and sometimes when they become dull, being ground by hand, they are ground a little out of "true." In this event there will be a slight variation in the cut. This variation is ascertained by running the mills over a set of jaws and testing the cut by the template, and if the cut does not correspond with the template the mill is corrected until the cut exactly fits the template. Now, in testing the mills one or more sets of jaws will be passed
100 through them, and these jaws thus used to test the mills will be thrown into the waste box, and it was from these test jaws that Johnson probably made his model, and it is for this reason that the jaws of this model do not fit the templates. He got the jaws for his model out of the waste box, most likely, but they were jaws that had been used to test the mills by long after the dies had been altered, the forgings enlarged, and the templates and mills made. It is impossible to mill those jaws as they are milled out of the old forging made before the alteration of the dies.

The imperative necessity of a model nipper is apparent, and the necessity of it being a full and complete model always in the possession of the company to test the templates by is also apparent, and no one knows it better than Johnson; and yet he undertakes to impose upon us this skeleton C as the model nipper of the Interchangeable Tool Co.; says he made it in the shop of the company, in the company's time, and in the pay of the company, and then carries it off with him. (X QQ. 361 to 398.)

The witness insists that Exhibit C was the company's model nipper, and, knowing how absolutely essential it was for the company to have their model continually in use, he admits
101 that he carried it off—admits that he was guilty of taking the company's model nipper, that which he, as an expert toolmaker, knew the company could not do without.

This model, the jaws and handles of which he says were used as templates to set the milling tools by, he admits that he took out of the possession of the company, and, to cap the climax, he says he took the jaws of this model out of the company's shop in July, 1879, and put it in his trunk, and that they remained in his trunk from the time he put them there until the time he left the employ of the company; and yet he swears that he used these very jaws to set the mills by. How he used them to make and set the mills by while they were locked up in his trunk is not clear. Johnson swore positively, in answer to X Q. 321, that the milling tools for the inside of the nipper were not made from a template, but were made from the jaws of model C.

And Whittlesey swears as positively, in answer to X Q. 129, that he made the mill for the inside of the jaw from a template.

And, in answer to X Q. 318, Johnson again swears that
102 "the profile of the jaws and handles of Exhibit C were the only gauge the mills were formed to."

So, again, in answer to X Q. 314, he says: "These mills were made from the model, Exhibit C, which is the first and only model of this sized nipper."

Whittlesey says (Q. 3) that he went into the employ of the company April 23d, 1879, and left it January 3d or 4th, 1880.

And, in answer to X Q's 229 to 233, he says the first job he did when he went there was to make the templates for the mills, and that it probably took him two or three days to make those templates; and the next job was to make the templates for the jaws of the nipper.

Now, what did Whittlesey make these templates by? The model was not completed, as Johnson says (Q. 40), until the 20th of May, 1879, nearly one whole month after Whittlesey went into the employ of the company.

It was impossible for Whittlesey to make the templates before he had the model, and yet he completed the templates for the mills within three or four days after he went to work for the company.

He must have had these templates completed by the 27th of
103 April, and his next job was to make templates for the jaws.

He was at work on the templates for the jaws, then, by the 28th of April, 1879. Now, what model was he fitting these templates to? Not model C, for that was not made until May 20th, 1879, and, moreover, the templates do not fit that model.

It is certain, therefore, that the templates were made after some other model. Why, there was no other model to make these templates by but the Jencks model as altered by Johnson as soon as he went into the employ of the company. The first thing he did as has been shown, after going to work for the company was to make templates showing the cog connection between the handles, after Adams had experimented with the pins, and the next thing was to make a drawing showing the nipper as it was to be, and then to alter the Jencks model to correspond with the drawing. The Jencks model nipper then became the model nipper of the company.

That was what he was employed to do and that is what he did do, as we shall now proceed to show.

From the testimony of Hall, beginning with Q. 126, p. 26, and ending with Q. 152, p. 28; and from Hall's testimony in rebuttal,
104 QQ. 19 and 20, p. 120; from the testimony of Oliver, Q. 22, p. 61, to Q. 26, p. 62; from the testimony of Oliver in rebuttal, Q. 2, p. 100, to Q. 11; from Pope's testimony, Q. 8, p. 76, to Q. 16, p. 77, and also QQ. 32 and 33; and from Q. 25 of Kennelly's testimony, p. 139, it will be seen that Hall and Oliver both swear positively, before and after the testimony of Johnson was put in, that Johnson altered the Jencks model nipper, and that after it was so altered it was the model nipper of the company from which all dies, templates, and tools were made, and that from that nipper as a model they made between 40,000 and 50,000 nippers. Hall, Oliver, Pope, and Kennelly all swore that they never saw model C before it was shown them in evidence.

Johnson swore that he did not alter any of the parts of the Jencks model nipper, but he admits that he put new handles in it. (X QQ. 262 to 270, p. 30; also X QQ. 276 to 281, p. 31.)

He admits putting new handles in the Jencks model nipper having

the gear connection, and that it was done about the same time he made model C, but he forgets whether it was before or after that model was made. Now, if model C was the company's
105 model nipper, what were the new handles put in the Jencks model for? What object could there have been in experimenting with the Jencks model after the invention was perfected and embodied in model C? True, Johnson says the new handles in the Jencks model had two or three cog teeth between them, but how does that make any difference in point of invention, and why should new handles be made and put in the Jencks model having two cogs after model C was perfected with one cog? The truth is that this whole story about model C is false. It is utterly inconsistent with all the circumstances in the case. It cannot be made to harmonize with the indubitable facts in this case. Hall and Oliver both swear most positively that Johnson altered the Jencks model by dove-tailing pieces of metal in the handles to form the gearing. This Johnson denies, but he admits that he put new handles in that nipper having cog gearing between them, and that he did it about the time he made model C; and he admits at the same time that the spring in the Jencks model was set in notches cut in the jaws, below the throat of the nipper, put there, as he says, at the time he made that model, under the direction of Hall, at the shop of Jencks & Co.

106 That Johnson put new handles in the Jencks nipper is doubtless true, but such new handles were mere duplicate handles to go to the die-sinker to make the new dies by.

In Johnson's testimony (X QQ. 285 to 304, p. 32) is a short statement by Johnson himself as to how the nipper is made and an admission that the Jencks model was altered; that the dies were altered to conform to it; that the new nipper could not be made out of the old forgings. True, he says here, in answer to X Q. 300, that the nippers made by the company after the alteration of the Jencks model were not made to conform to that model, but head mitted that the Jencks model was altered—a fact he had previously denied. Being asked (X Q. 301) how the nipper manufactured by the company differed from the Jencks model after it was altered, he replied that it had more teeth in the cog gearing, and that the long end of the jaw was more hooked at the part where it came in contact with the handle lever. That is the only difference he was able to point out between the Jencks model nipper after it was altered and the nipper as it was manufactured by the company or as it appears in Exhibit No. 10. Now, Johnson himself does not point out any substantial or patentable difference between the Jencks
107 model nipper as altered by him and the nipper described and illustrated in his patent. The jaw lever was more hooked at the point where it came in contact with the handle lever, and there were more cogs in the handles of the Jencks model as altered by him than in his model C. That is all the difference he was able to distinguish. Hall and Oliver both swore that Johnson altered the Jencks model for the company in the fore part of May, 1879. Johnson himself admits it, and as to the model C it has been shown

that it was impossible for Johnson to have made the model until after the dies were altered and the forgings enlarged, and that the dies could not be altered until the model nipper was made, and the die-sinker, Kennelly, swore positively that he never saw the model C before the day he gave his testimony. He certainly did not, therefore, sink the dies from that model, although he swears that he did have a model by which to sink the new dies, and that model was made by Johnson, as appears by the testimony of Adams, X Q. 347 to 349, p. 178.

From the testimony of Whittlesey, X QQ. 87 to 97, p. 120, it will be seen that this witness swears (X Q. 96) that the jaws and
108 plate of the Jencks model were used as the model from which the company manufactured its nippers, and that the jaw templates were made from this model.

Again, from this testimony of Whittlesey's (X Q. 148, p. 127) it will be observed that the jaws of Exhibit No. 8 are made of the old forgings before the alteration of the dies, and the jaws of Exhibit No. 10 are made of the new forgings and milled by the company's mills as they now are, and the witness swears that the old forging could not be held in the same milling vice jaws that the new jaws are milled in, and that the old jaws are scant of stock, and would not mill up, and yet Johnson swears that he made the jaws of Exhibit C of the old forgings, and Whittlesey swears (X Q. 56, p. 117) that at least one of the jaws of Exhibit C has been milled, as it certainly has been, in the mills of the company as they now are.

Now, if the jaws of Exhibit C were milled in the same vice jaws that Exhibit 10 were milled in, then surely the jaws of Exhibit C could not have been made until after the milling vice jaws were made, which was in June or July, 1879, and these jaws of Exhibit C Whittlesey swears have certainly been milled in the milling
109 vice jaws, Hall's Exhibit No. 19. (Whittlesey, X QQ. 151 to 156, p. 128.)

Upon his cross-examination Whittlesey was requested to mark one of the jaws of Exhibit C with the letter W, which he did, as will be seen upon reference to X Q. 149, p. 127.

Now, turning to the testimony of Adams, X QQ. 273 to 278, p. 181, the value of the testimony of Whittlesey receives a severe shock. He actually declares that he identifies the jaws of this model C by what he calls the letter M, and which he says he put on the jaw at the time it was made to identify it as the model nipper, but which, in fact, was the letter W, put on by Whittlesey only a few days previous, as shown by his testimony. If, as Adams says, the letter M was put on the jaws of the model nipper to distinguish it, then model C is not the true model, for there certainly is no letter M on the jaws of that model.

What this witness says about the marking of model C appears in his testimony, Q. 13, p. 145, to Q. 31.

Here he swears that the jaws of this supposititious model were made out of the old forgings, and in the next breath he swears that they were cut to their present shape by the milling tools of
110 the company, when, in fact, according to the testimony of all

the witnesses, if the model was made at the time he says it was, by May 15th, 1879, the company did not have any milling tools whatever. (Whittlesey, X QQ. 122 and 133 to 135, pp. 124 and 125.)

And if it had one of the old jaw forgings it could not, as Whittlesey swears, have been milled in them to the size of the jaws of Exhibit C.

The witness swears that he made model D, and that he gave it to Johnson and told him to make model C, and that Johnson made the model as he (Adams) told him to, and yet he says Johnson was the inventor, and that the men in the shop gave Johnson credit for the invention. Now, what did Johnson invent? What invention is there from model D to model C? Model D has got the cog connection between the handle and the notch to indicate where the spring is to go. What was left for Johnson to invent? What did the men in the shop give him credit for? All that Johnson did was to make the gearing as Adams had told him to make it, and to cut the seat for the spring a little deeper than is indicated by model D.

That, then, according to Adams, is Johnson's invention.

111 He cut the spring seat in his model a little deeper than Adams cut it in his.

There is, perhaps, enough so far to show that the model C is supposititious; that Johnson never invented any improvement upon the Hall nipper; that Adams got the idea of putting the pins in the handles to form the gearing from Hall; that he made his model D from that suggestion and gave it to Johnson to alter the handle of the Jencks model by, the jaws of the Jencks model having the spring set in below the throat, the same as in model C, a little more metal being put under the throat of the new forging to make the spring set deep enough and obtain a larger lip over the spring. (Whittlesey, X QQ. 128 to 130, p. 124.)

Johnson did not add a single new idea to the Hall nipper; all that he did was to skillfully embody the thoughts suggested by Hall and given to him by Adams, for which he was employed and for which he was paid.

There is a dreat deal that is conflicting in the testimony on behalf of Johnson on material and essential points. Thus Johnson

112 swore (Q. 35) that in making the model C he did not get any ideas from any one else, and that it was his invention, so far as he knew.

Whereas Adams, as shown, says that he made model D and gave it to Johnson and told him how he wanted the nipper made, and that model C was the result. Johnson again swore that he made the model C of his own notion, without any direction from any one. (X QQ. 361 and 362, p. 42.)

But Adams swore that he told him how to make it.

Johnson swore that the milling tools of the company were made from the model, Exhibit C, and not from templates. (X QQ. 318 to 322, p. 37.)

Whereas Whittlesey swore that he made the milling tools for the jaws from the templates made from the Jencks model nipper. (X Q. 97, p. 121.)

Adams swears, as we have shown, that the jaws of model C were cut to their shape by the milling tools. Johnson swears that he made the jaws with a file out of the old forgings, and that to obtain the necessary stock in the right place he might have put them
113 in the fire and drawn them, but whether he put them in the fire and drew them or not he does not recollect. (Johnson, X QQ. 329 and 330, p. 38.)

But Adams swears that there was but one ten-thousandth of an inch left on the forging for the mills to cut off. (Adams, X Q. 285, p. 182.)

And Whittlesey swears that he filed off the jaw pieces of model C for Johnson. (X Q. 52 to 55, pp. 116 & 117.)

Now, after Whittlesey had filed off the cheek pieces of the jaw levers, what was there left for Johnson to draw out in the fire to obtain the necessary stock in the right place in making model C with the file from the old forging? Just one one-thousandth of an inch, the thickness of the old forging being the same as the thickness of the new ones.

Adams swears that he never claimed to any one that he was the inventor of the improvements upon the Hall nipper. (X QQ. 105 to 107.)

In answer to this Whittlesey swears. (X Q's 209 to 211, p. 134.)

114 And so on through the whole of the testimony of all these witnesses. Johnson, Whittlesey, and Adams, flatly contradict each other upon matters that go to the essence of the controversy.

In the testimony in behalf of Hall all the exhibits are put in that are necessary to show what the old nipper was, what the improvements are, and how the nipper is produced. The company's model nipper—that is, the model nipper made by Johnson under the direction of Hall while in the employ of J. H. Jencks & Co. and altered by Johnson as soon as he went into the employ of the company—is not in evidence on behalf of Hall, for the reason that he has not got it. In the language of Hall, it mysteriously disappeared from the shop of the company about the time Johnson made up his mind to apply for a patent. Hall says (Q. 149, p. 28) that it was some time in January, 1881, that he last saw that model.

And Johnson says (X Q. 255) that it was in January, 1880, that he last saw it.

Now, Johnson was dismissed about the first of May, 1880,
115 and was foreman of the shop up to a short time before his dismissal, and it was his business to know where the model nipper was. No one seems to have heard that Johnson set up any claim to the invention until after he was dismissed, but very shortly after that—about the 20th of May, 1880—he told Whittlesey he was going to apply for a patent for it, and that he had sold it to Mr. Henry G. Thompson. (Whittlesey, X QQ. 213 to 228, p. 135.)

Thompson says he first became acquainted with the Interchangeable Tool Company in the month of February, 1880, at which time the company applied to him to rent the engine, boiler, and machinery in the Milford steam-power building. (Thompson, Q. 2.)

And not being in want of cash he sold the company the said machinery for sixty-seven shares of its capital stock. (Q. 6.)

That the company got the machinery in operation on March 1st, 1880. (Q. 7.)

That, as a stockholder in the company, he made himself familiar with what was being done by the company and the workmen in the shop. (Q. 8.)

That as soon as he got the stock of the company he made
116 up his mind to thoroughly investigate the nipper business, and that his first step in such investigation was to go to Boston and employ his patent solicitor, George W. Gregory, to proceed to Washington and report upon the history of the art appertaining to cutting nippers in general and Hall's nippers in particular From this investigation he found that a number of patents had been granted for different nippers, and that the Hall nipper as it was being manufactured by the company was not covered by the Hall patent of November 5, 1878. (Q. 13.)

This last was an important piece of information, for, as the patent was originally granted to Hall and as it then stood, it did not, it seems, cover the combination of parts composing the invention, but only one of the insignificant features that was discarded in the manufacture of the nipper, but the patent has since been reissued and made to cover the invention so as to protect it.

Knowing as he did the weakness of Hall's patent, Thompson thought, it seems, that if he could get a patent for the improvements on the nipper involved in this interference he would have
117 the Interchangeable Tool Company in his power. The arrangements for obtaining the patent were quickly and quietly made. Not one of the officers of the Interchangeable Tool Company knew of it (save Gustam, who was in the secret) until after the patent was granted, at which time Mr. Thompson informed Mr. Hall that the patent had been granted, and that he had purchased it to "protect the company." (Hall, Q. 27, p. 8.)

One thousand dollars' worth of the stock of the Interchangeable Tool Company, at its par value, twenty shares, is what Mr. Thompson agreed to give Mr. Johnson. Mr. Thompson got his stock in March. (Q. 13.)

And he made his investigation at once, and ascertained that the stock was of no value, as he swears, after which, before May 20th, he appears to have given Johnson twenty shares of this stock "to protect the company."

Thompson swears (Q. 5) that Hall told him that the company's stock was at a premium of 2½ to 5 per cent., a statement that Hall contradicts flatly.

Thompson says that Hall told him that his patents cover the use of a compound lever as applied to nippers. Hall says that Thompson told him that he could satisfy himself about the patents at the Patent Office.

118 Thompson says that Hall told him the cost of nippers was twenty-eight cents per pair, and that he afterwards ascertained the cost to be seventy-eight cents per pair (Q. 9). Hall flatly con-

tradicts this statement and says that the cost of the nipper is less than 28 cents per pair, and that Thompson made his own estimate as to the cost of the nipper and produced his figures to Hall showing the cost of the nipper to be less than 28 cents per pair.

Here is the oath of one man against the oath of another; but what are the circumstances? Thompson's testimony is erroneous upon its face, for the company could not manufacture nippers at 78 cents per pair and sell them at $9 per dozen; and yet they do manufacture the nippers at less than the cost named and do sell them at the price named. Again, if Thompson knew that the nippers were manufactured at a cost of 78 cents per pair he knew there was no profit in the business, and how are we to account for his efforts to obtain and hold this patent?

The testimony of Johnson as to the sale of the invention to
119 Thompson begins with X Q. 92, p. 15, and ends substantially with X Q. 126.

Hall, Oliver, and Judge were all in constant intercourse with Johnson, and they all swore that they never heard that he made any claim to the invention in question until after the patent was granted; but Gustam says (X QQ. 343 to 345) that he first heard that Johnson had applied for a patent about the middle of August, 1880, and that he heard it either from some member of the company or from Henry G. Thompson.

Now, inasmuch as the other members of the company did not know of it, he certainly did not hear of it from them, and it is equally certain that he did not impart the information to them when he did hear of it, as he says he did not. (X QQ. 347 and 348.)

But as soon as Thompson had obtained the patent Gustam, without the authority or knowledge of the company, became very active, according to his own showing, in an effort to purchase the patent of Thompson. The company, however, told him Mr. Thompson's proposition would not be entertained, and so put an end to his efforts. (Gustam, p. 105.)

120 Failing to induce the company to purchase the patent of Johnson, Gustam became very active in making this application for Hall. He employed Prescott (the former attorney in this cese) to make the application. (X Q. 318, p. 101.)

He borrowed $100 of Mr. Rogers and $50 of Mr. Stoddard to go to Washington to hurry forward the application. (X QQ. 320 to 322 and 329.)

Believing all the time that Johnson was the inventor (X Q. 326), he was pressing the application for Hall.

By his own testimony it appears that Gustam, while an officer of the company, was foremost in pressing the application of Hall, while he believed Johnson to be the inventor.

Hall first took steps to apply for his patent in 1879, but the application had to be deferred, because the company had barely money enough to meet its pay-roll, and in December, 1879, the company started an application for a patent in France for this very nipper, the application being made in France because a trade in the nipper was being established. (Judge, Q. 32, p. 53.)

121 The patent was obtained in France, and it appears in this case as Hall's Exhibit No. 11.

On October 7, 1879, the board of directors of the Interchangeable Tool Company passed a resolution directing the secretary of the company (Gustam) to apply for a patent for the nipper in France at once. That resolution was passed in the presence of Mr. Gustam and is in his handwriting. (Oliver, Q. 35, p. 63, and X QQ. 46 and 47, pp. 65 and 66. See also redirect QQ. 58 to 60.)

Mr. Judge thought this resolution was passed in December, but he stated the time from memory only, not having the minute book at hand; but the testimony of Oliver and the production of the minute book and the resolution itself and the report of the secretary, Gustam, is conclusive as to when the resolution was passed, what its object was, and the kind of nipper the company intended to patent in France when the resolution was passed. Yet, in the face of this, Gustam swears that the application in France was for the nipper as it appears in the American patent to Hall of November 5th, 1878,

122 and that he delayed the application after the money was given him to pay for the patent until he could get a perfected nipper as made by Johnson, and that he then caused the application to be altered so as to include the perfected nipper instead of the nipper as it appears in Hall's patent. (Gustam, QQ. 29 to 35.)

Here he seeks to make it appear that after the passage of the resolution, which was on October 7th, and the money given him to apply for the patent in France he delayed making the application for one whole month to enable him to get a perfected nipper as made by Johnson, when, according to his own report, which is dated September 16th, 1879, the company was manufacturing these very nippers at the rate of ten dozen per day. Ten dozen per day the company was manufacturing at the time this resolution was passed, and he got the money to apply for the French patent, and yet had to wait one whole month before he could get a perfected nipper to give to the solicitor to make the drawings from the patent. (See also Gustam's X Q. 302, p. 98, to X Q. 316, p. 101.)

Whittlesey swears that at the time of the passage of the

123 resolution the company was manufacturing these nippers in large numbers, and that he would have had no difficulty in getting one if he had wanted it. (X QQ. 186 to 188.)

Hall says, in answer to X. Q. 111, that he applied for a patent for his invention in France with the improvements, and that he obtained the patent April 12th, 1880, and, in answer to Q. 112, says he gave his attorney one of the improved nippers from which to make the drawing for the French patent.

Now, Hall's patent was applied for in France upwards of seven months before Johnson's application was filed, and was granted and dated nearly two months before Johnson's application was filed in this country. Johnson's application here should have been rejected on Hall's French patent, as it doubtless would have been had the office known of it; and had Gustam reported the application of Johnson to the company as soon as he knew of it, which, he says, was about the middle of August, 1880, Johnson could not have got

his patent; but Gustam was careful to keep from the company all his knowledge of Johnson's application until the patent
124 was granted.

Now, there is not one word of testimony in the record going to show that the company had any idea of surreptitiously obtaining a patent in France for any invention made by Johnson; on the contrary, they had no knowledge that Johnson laid any claim to the invention until after his patent was granted.

Even Gustam did not swear that Johnson laid any claim to the invention while he was in the employ of the company. Now, Hall's French patent would certainly defeat Johnson's American patent unless it could be made to appear that Hall had surreptitiously obtained a patent for Johnson's invention. Now, Johnson was in the employ of the company one whole year, during which time the company manufactured and sold thirty thousand of these nippers, as Johnson states in his preliminary statement and as Hall swears in answer to Q. 187 to 191, pp. 35 and 36.

Now, can we believe that if this man was the inventor of this improvement he would have stood by and seen all these nippers made and sold and help manufacture them for one whole year
125 without opening his mouth to some of the officers of the company to claim his right to the invention? He was treated with kindness and forbearance by Hall and the officers of the company. Why did he not claim his right to the invention if he was the inventor? Why did he wait until after he was dismissed and then go to Thompson and apply for the patent? Surely, if Johnson was the inventor and the invention was for sale, the company was entitled to the first offer, and not Thompson. Again, if the company knew Johnson to be the inventor, is it possible that it would have dismissed him with the certainty that he would sell the invention to some one else, an invention that was of the utmost importance in the prosecution of its business?

Assuming for the instant that Johnson is the *bona fide* inventor of this improvement, what legal right can he have to a patent upon the circumstances in this case? Could an inventor by any act of his own more perfectly and completely abandon his right to a patent? He is in the employ of the Interchangeable Tool
126 Company; he stands by while that company purchases its machinery, alters its dies, and makes all the preparations and incurs all the expense necessary to manufacture the improved nipper; he assists in the manufacture, sees them marked and sold as the patented invention of another, and witnesses the sale of thirty thousand of them during the period of one whole year without speaking one word to assert his rights to the invention or to claim a patent for it. These facts are established. In the face of them how could Johnson have a valid patent for the improvements? Says the Supreme Court in Consolidated Fruit Jar Co. *vs.* Wright, 4 Otto, 96: "He who is silent when he should speak must be silent when he would speak, if he cannot do so without a violation of law and injustice to others."

The law allows an inventor two years in which to apply for a patent, within which time he may publicly use it without forfeiting

his right to a patent, unless he abandons it to the public; but is there any law that permits an inventor to stand by and see
127 some one else publicly make and use it with his knowledge and consent, without even so much as intimating that the invention is his, for one whole year and then come forward and have a valid patent for it?

Abandonment is a question of fact. The law does not give an inventor two years in which to abandon his invention. The statutes do not say that no matter what use is made of a man's invention or what the inventor does he shall not forfeit his right to a patent in less than two years. The question of abandonment does not depend upon the amount of time merely, but upon what the inventor does or says. By his acts and deeds an inventor may abandon his invention in two months, two weeks, or two hours and forfeit his right to a patent for it, and it is reasonably certain upon the evidence in this case that Johnson (supposing him to be the inventor) had no idea of applying for a patent for this improvement until after he was dismissed, and that he never would have applied for a patent had he not been incited by Thompson or some one else; but
128 then it was too late. The company had acquired a perfect legal right to manufacture and sell the nipper under section 4899 of the Revised Statutes, and also by a presumed license through the acquiescence of Johnson.

If the company has acquired a right to manufacture and sell the nipper, then surely its customers have a right to buy and sell them, and if their customers have such right what force or avail is the patent to Johnson? If their customers have not such right of what force or avail is section 4899 of the Revised Statutes or the license acquired by the company through the tacit consent of Johnson? The customers of the Interchangeable Tool Company are the public, and the public, in the purchase of thirty thousand of these nippers, acquired just as good a right to use the invention, through the silence and tacit consent of Johnson, as the Interchangeable Tool Company did, and that right Johnson cannot take back, even though he were ten times the inventor.

129 But Johnson was not the inventor. He was simply the skilled workman who for pay wrought out with his hands the thoughts and suggestions of Hall.

It is proved out of the mouths of Johnson and his witnesses, to say nothing of the testimony of Hall and his witnesses, that Johnson made the Jencks model nipper under the direction of Hall; that the spring in that nipper was of exactly the same shape and kind that it is in the patent to Johnson, and that it was seated between the jaws below the throat of the nippers in notches cut there to receive it precisely as in the patent to Johnson, the lip over the end of the spring being about $\frac{1}{32}$ of an inch shorter than in the patent to Johnson; and it is proved, too, by Johnson and his witnesses that the insertion of the pins in the handles of the nipper was the first step taken toward putting the cog gearing between the handles; and it is proved by Hall and his witnesses that the suggestion and direction to put in this pin gearing came from Hall to Adams; and

130 and it is proved by Adams himself that he made Exhibit D and gave it to Johnson and told him to make the gear connection between the handles. What was there left for Johnson to invent?

Nothing.

The decision of the examiner of interferences, then, must be reversed and judgment awarded to Hall.

R. G. DYRENFORTH,
H. H. BATES,
Examiners-in-Chief.

I am satisfied that all that Johnson did or supposed he had done, until induced by another to make claim and take a patent, was as a skilled mechanic to put in form and shape the prior conceptions of Hall.

The evidence is perfectly satisfactory that Hall had fully conceived of improving his nippers by adding the cog connection, which was old in other instruments, and the lips to hold the spring in place, which was original and the only feature involving invention, before he met with Johnson. Johnson worked, by his own admission, under the direction of Hall, and made no claim
131 to have invented anything, and saw Hall and his associates go on and at great expense prepare their machinery and establish their plant and go into the extensive manufacture of the improved nippers and put them on the market, and even assisted them in so doing.

If he worked out any valuable suggestion of his own it was evidently considered by him that it was for their exclusive benefit, and he was fairly estopped from setting up any claim to monopolize it at the late day he went with Thompson to handicap their works with an adverse patent.

I concur in the reversal of the decision and awarding priority to Hall.

R. L. B. CLARKE,
Examiner-in-Chief.

Ex'd: E. A. M., C. F.
Ex'd: J. A. W., M. McK.

131½ [Endorsed:] 12279, D. '84. 7463. 33732. 5. Thomas G. Hall *vs.* Moses C. Johnson. Subject-matter, nippers. Decision of the examiners-in-chief, October 3, 1882. Recorded Vol. 17½, p. 475.

132 DEFENDANTS' EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed

is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

133 HALL'S EXHIBIT No. 14. Oct. 12, 1881. J. E. B.

Petition.

To the Commissioner of Patents:

Your petitioner, Thomas G. Hall, a citizen of the United States, residing at Milford, in the county of New Haven and State of Connecticut, prays that letters patent be granted to him for the improvements in nippers set forth in the annexed specification; and your petitioner further prays that Amos Broadnax may be recognized as his attorney in presenting and prosecuting this application and to receive the patent when granted.

THOMAS G. HALL.

DEFENDANTS' EXHIBIT HALL'S APPLICATION. Prepared by Broadnax. J. E. B., Sp. Ex'r. 29 Mar., 1884.

THOMPSON *vs.* HALL *et al.*

134 To all whom it may concern:

Be it known that I, Thomas G. Hall, of Milford, in the county of New Haven, State of Connecticut, have invented certain new and useful improvements in nippers, of which the following is a description in such full, clear, concise and exact terms as to enable any one skilled in the art to which said invention appertains or to which it is most nearly connected to make and use the same, reference being had to the accompanying drawing, making part of this specification, and to the figures and letters of reference marked thereon.

This invention consists of certain improvements upon the nippers for which letters patent of the United States were granted to me November fifth, 1878.

Figure 1 of the drawing is an external and figure 2 an internal view of the nippers with my improvements applied thereto.

These improvements consist—

First, of a recess and lip cut in each jaw of the nippers to receive and hold in position the reacting spring.

135 Second, of a cog connection between the levers by which the two levers are made to act together. In all other respects the nipper illustrated by the accompanying drawing is the same as that for which said patent was granted.

The recess above referred to is shown in the drawing by *a a*, and the lip at the head of each recess is shown by *b b*. The object of the

recess is to form an angular receptical for the reacting spring. The recess is made deepest at its top end, so that when the two jaws are put together they form a wedge-shaped receptical, into which the head of the spring is fitted.

Now, the lip *b* at the head of the recess prevents the spring from slipping up towards the cutting edge of the nippers and the wedge form of the recess prevents it from slipping down towards the levers.

The cog connection between the levers is shown by *k*. The object of this connection is to make the two levers act exactly alike, so that one jaw shall not travel faster or with more force than the other.

136 I claim as improvements upon the nippers aforesaid—

First. The receptical *a a* and lip *b b*, in combination, to receive and hold the spring.

Second. The cog connection *k* between the levers A A to make them act in unison on the cutting jaws.

THOMAS G. HALL.

Witnesses:

L. D. KEMP.
J. F. OLIVER.
WILLIAM Q. JUDGE.

137 [Endorsed:] Thompson *vs.* Hall. Defendants' paper exhibit. Specification by Broadnax.

(Here follows diagram marked p. 138.)

139 DEFENDANTS' EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 140.)

T. G. Hall. 140

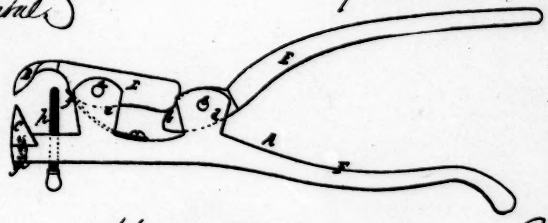
Nippers.

No 64,664. Patented May 14. 1867.

Thompson v. Hall { Defendants' Exhibit Hall's Patent of March 14. 1867. J. E. B. Sp. Ex^r. 7 Apl. 1884.

No 186. Thompson v. Hall et al. } p. 140.

Fig 1.



Hall's Exhibit No 6. September 5th 1881 W.H.B

Fig 2.

Witnesses:
J. A. Serrine
Wm. Irwin

Inventor:
Thomas G. Hall
Per Munn & Co.
Attorneys

141 UNITED STATES PATENT OFFICE.

THOMAS G. HALL, of New York, N. Y., assignor to himself and C. E. McDonald, of Brooklyn, New York; said C. E. McDonald assignor to E. Harry Gifford, of Brooklyn, New York.

Letters Patent No. 64664, dated May 14, 1867.

Improved Nippers.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, Thomas G. Hall, of the city, county, and State of New York, have invented a new and useful improvement in nippers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of this invention.

Figure 2 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to a pair of nippers, the movable jaw of which is secured to one end of a lever, the other end of which is acted upon by a toe attached to the inner end of the appropriate handle in such a manner that a great leverage is effected, and the operation of the nippers in cutting wire or other articles is materially facilitated. The stationary jaw is secured to the end of its handle by a dovetail and screw, so that the same can be readily taken off for the purpose of sharpening, or that it can be replaced when worn out. A suitable set-screw prevents the cutting edges of the two jaws from overlapping or from being forced too close.

A represents a pair of nippers, which are composed of a movable jaw, B, and a stationary jaw, C. The movable jaw is secured to the outer end of a lever, D, which has its fulcrum on a pivot, *a*, secured in two lugs or ears, *e*, which rise from the shank or handle F of the stationary jaw. The inner end of this lever is acted on by a toe, *b*, formed at the end of the handle E, which has its fulcrum on a pivot, *c*, in the lugs or ears *d*, which rise from the handle F at some distance from the lugs or ears *e*. A spring, *f*, keeps the inner end of the lever D in contact with the toe *b*, as shown in Fig. 1 of the drawing, and by these means the jaw B is thrown open. The stationary jaw C is fitted into a V-shaped or dovetailed recess in the end of its handle F, and it is retained in position by a screw, *g*. By taking out this screw the jaw can be readily removed for the purpose of sharpening, or when worn out it can be easily replaced by another. A set-screw, *h*, prevents injury to the cutting-edges in case undue pressure should be applied to the handles, whereby, if the set-screw

should be omitted, said cutting-edges would be liable to be forced too close together, or caused to overlap each other, and to get broken. By the combination of the lever D, toe *b*, and handle F an immense power can be brought to bear on the jaw B, and the operation of cutting wire or other articles is materially facilitated.

Having thus described my invention, I claim as new and desire to secure by letters patent—

The lever D, handles E and F, toe *b*, spring *f*, jaws B C, set-screw *h*, constructed, arranged, and operating substantially as and for the purpose described.

The above specification of my invention signed by me this 5th day of November, 1866.

THOMAS G. HALL.

Witnesses:
WM. F. McNAMARA.
W. HAUFF.

142 DEFENDANTS' EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 143.)

144 UNITED STATES PATENT OFFICE.

THOMAS G. HALL, of Brooklyn, assignor, by mesne assignments, to the Interchangeable Tool Company, of New York, N. Y.

Cutting-Nippers.

Specification forming part of Reissued Letters Patent No. 10028, dated February 7, 1882; original No. 209,677, dated November 5, 1878; application for reissue filed January 16, 1882; patented in England September 24, 1878, in Germany June 12, 1879, and in France February 20, 1880.

To all whom it may concern:

Be it known that I, Thomas G. Hall, of the city of Brooklyn, in

T. G. HALL, 143

Assignor, by mesne assignments, to THE INTERCHANGEABLE TOOL COMPANY.

CUTTING NIPPERS.

No. 10,028. Reissued Feb. 7, 1882.

Thompson v. Hall } Defendants Exhibit Hall's Reissue J. E. B. Sp. Ex. 6 June 1884

FIG. 1.

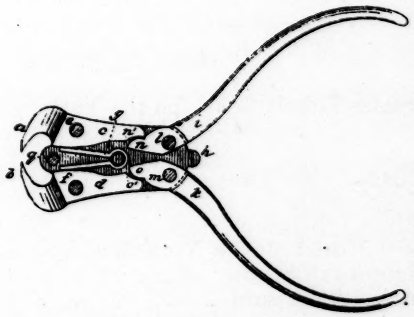
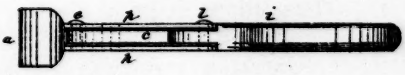


FIG. 2.



No. 186 Thompson v. Wallstal } p. 143

WITNESSES:

Amos Bowden Jr.
J. Egan Ball

INVENTOR:

Thomas G. Hall

the county of Kings and State of New York, have invented a new and useful improvement in nippers, of which the following is a specification:

In letters patent No. 64664, granted to me May 14, 1867, a pair of nippers is shown in which the movable cutting-jam is at the end of a lever that is operated upon by a pivoted handle, whereby great power is obtained upon the cutting-edges.

The object of my present invention is to furnish nippers that have great cutting power, and to lessen the expense of their manufacture.

The invention will first be described in connection with the drawings, and then pointed out in claims.

In the accompanying drawings, figure 1 is a side view of my improved nippers with one of the side plates removed. Fig. 2 is an edge view of the nipper.

Similar letters of reference indicate corresponding parts.

a b are the jaws of the nippers, formed with cutting-edges, as usual. The jaws *a b* are each at the outer end of the levers *c d*, respectively.

e is the fulcrum-pin of lever *c*, and *f* is the fulcrum-pin of lever *d*. The jaws are opened by a two-armed spring, *g*, held by a pin, *h*, between the levers.

i k are the handles, that are hung upon fulcrum-pins *l m*, respectively, so that the handles act as levers. The inner handle, *i*, is formed as a toe, *n*, that acts upon the lever *c*, and the handle *k* is formed with a toe, *o*, that acts upon the lever *d*. The toes *n o* of the handle-levers *i k* work in cavities *n' o'* of the levers *c d*, thus throwing the jaws *a b* each toward the other until the stop-pin *q* is reached. These parts are sustained by the side plates, *p p*. The fulcrums *e f* of the levers *c d* and fulcrums *l m* of the handles *i k* are screw-pins, that are entered through holes in one plate *p* and screw into holes in the plate *p* at the opposite side. The parts are thus securely held together.

q is a pin held by the plates *p* between the outer ends of the levers *c d* in such a position that the jaws or levers will bear against the said pin *q* just before the cutting-edges come into contact, to prevent injury to the edges by contact or overlapping.

The nippers are operated by pressing the handles *i k* toward each other. Each jaw *a b* is acted upon by compound leverage, and the pressure upon any article placed between the cutting-faces is augmented by the dual construction of the parts. The parts of the nippers are compact and strong and not likely to break by any pressure that can be applied by hand. The nippers are easily put together or taken apart for repairs, and the parts are of such shape that the lever-jaws are interchangeable, as are also the handles.

Having thus fully described my invention, I claim as new and desire to secure by letters patent—

1. A cutting-nipper consisting of the following parts, constructed and combined as described, viz: two jaw-levers, *c d*, upon one end of each of which a jaw and cutting-edge is made, and each of which is suspended upon an independent fulcrum, *e f*, between two side

plates, *p p*, two handle-levers, *i k*, each of which is also suspended upon an independent fulcrum between said side plates, and each of which is provided with a short toe, *n o*, set between the long ends of the jaw-levers, but not connected to them, for the purpose of closing the nippers, and a spring, *g*, held between said said side plates and set between the jaw-levers, for the purpose of opening the nippers, substantially as shown and described.

2. The combination, with the levers *c d* and plates *p*, of the pin *q*, arranged between said levers and in front of their fulcrums, as and for the purpose specified.

THOMAS G. HALL.

Witnesses:
AMOS BROADNAX.
J. EDGAR BALL.

145 U. S. Circuit Court for the Eastern District of New York. In Equity.

HENRY G. THOMPSON *vs.* THOS. G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 146.)

147 HALL'S EXHIBIT No. 7. September 5th, 1881. W. H. B.

UNITED STATES PATENT OFFICE.

THOMAS G. HALL, of New York, N. Y.

Improvement in Cutting-Nippers.

Specification forming part of Letters Patent No. 209,677, dated November 5, 1878; application filed August 30, 1878.

To all whom it may concern:

Be it known that I, Thomas G. Hall, of the city, county, and State of New York, have invented a new and useful improvement in nippers, of which the following is a specification:

In letters patent No. 64664, granted to me May 14, 1867, a pair of nippers is shown in which the movable cutting-jaw is at the end of a lever that is operated upon by a pivoted handle, whereby great power is obtained upon the cutting-edges.

146

Hall's Exhibit No 7 - September 1881 W.H.B.

T. G. HALL.
Cutting-Nipper.

No. 209,677. Patented Nov. 5, 1878.

Fig. 1

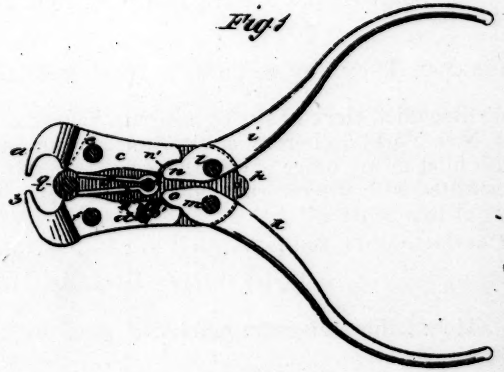


Fig. 2.

Thompson & Hall { Defendants' Exhibit No. 7, Hall's Patent of November 5, 1878
J. E. B. Sp. Ex. 7 Apl. 1884.

WITNESSES:
Francis McArdle
C. Sedgwick

INVENTOR:
T. G. Hall
BY Munn & Co
ATTORNEYS.

The object of my present invention is to furnish nippers that have great cutting power, and to lessen the expense of their manufacture.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

In the accompanying drawing, figure 1 is a side view of my improved nippers with one of the side plates removed. Fig. 2 is an edge view of the nippers.

Similar letters of reference indicate corresponding parts.

a b are the jaws of the nippers, formed with cutting-edges, as usual. The jaws *a b* are each at the outer end of levers *c d*, respectively.

e is the fulcrum-pin of lever *c*, and *f* is the fulcrum-pin of lever *d*. The jaws are opened by a two-armed spring, *g*, held by a pin, *h*, between the levers.

i k are the handles, that are hung upon fulcrum-pins *l m*, respectively, so that the handles act as levers. The inner end of handle *i* is formed as a toe, *n*, that acts upon the lever *c*, and the handle *k* is formed with a toe, *o*, that acts upon the lever *d*. The toes *n o* of the levers *i k* work in cavities *n' o'* of the levers *c d*, thus throwing the jaws *a b* apart until the stop-pin *q* is reached. These parts are sustained by the side plates, *p p*. The fulcrums *e f* of the levers *c d* and fulcrums *l m* of the handles *i k* are screw-pins, that are entered through holes in one plate, *p*, and screw into holes in the plate *p* at the opposite side. The parts are thus securely held together.

q is a pin, held by the plates *p* between the outer end of the levers *c d*, in such position that the jaws or levers will bear against the said pin *q* just before the cutting-edges come into contact, to prevent injury to the edges by contact or overlapping.

The nippers are operated by pressing the handles *i k* toward each other. Each jaw *a b* is acted upon by compound leverage, and the pressure upon any article placed between the cutting-faces is augmented by the dual construction of the parts. The parts of the nippers are compact and strong, and not likely to break by any pressure that can be applied by hand. The nippers are easily put together or taken apart for repairs, and the parts are of such shape that the lever-jaws are interchangeable, as are also the handles.

Having thus fully described my invention, I claim as new and desire to secure by letters patent—

The combination, with the levers *c d* and plates *p*, of the pin *q*, arranged between said levers, and in front of their fulcrums, as and for the purpose specified.

THOMAS G. HALL.

Witnesses:
C. SEDGWICK.
GEO. D. WALKER.

148 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is

an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 149.)

150 DEFENDANTS' EXHIBIT.

United States Circuit Court for the Eastern District of New York.
In Equity.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the United States circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the United States Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 151.)

152 UNITED STATES PATENT OFFICE.

FREDERICK C. LEYPOLDT, of Philadelphia, Pennsylvania.

Improvement in Button-Hole Cutters.

Specification forming part of Letters Patent No. 202,446, dated April 16, 1878; application filed November 14, 1877.

To all whom it may concern:

Be it known that I, Frederick C. Leypoldt, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful improvements in button-hole cutters, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to certain novel improvements in button-hole cutters and analogous instruments. It has for its object simplicity and economy in construction, and great power of the cutting-blade. With these objects and ends in view, my invention consists of a button-hole cutter or other analogous instrument, having the lower bifurcated jaw slotted vertically or transversely to the mouth of said jaw, and adapted to receive and guide the cutting-blade from pivot to point, as will be hereinafter more fully set forth.

F. C. LEYPOLDT. 151

Button-Hole Cutter.

No. 202,446. Patented April 16, 1878.

No 186. Thompson v. Hallstal } p 151

Fig. 1.

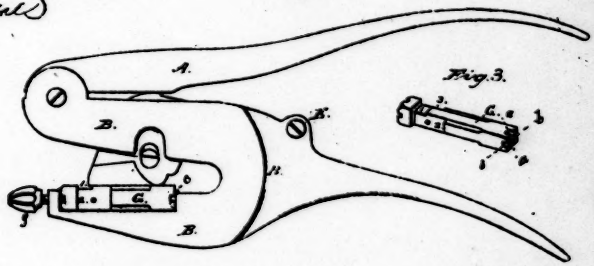


Fig. 3.

Fig. 2.

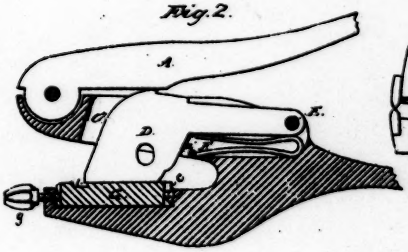


Fig. 4.

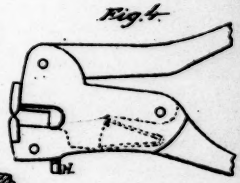
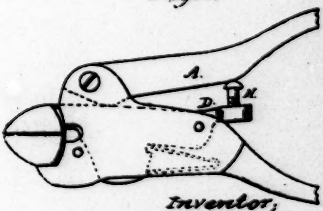


Fig. 5.



Witnesses:
John Tyler
F. O. Snow

Thompson v. Hall } Defendant's Exhibit Leypoldt Patent
I. E. B. Sp. Ex.
6 June 1884

Inventor,
F. C. Leypoldt
By atty. Jno. C. W. Sutton

My invention also consists in a novel cutting-block and the manner of its attachment, as will be hereinafter more fully set forth.

My present invention is designed to overcome some of the objectionable features found in button-hole cutters made according to letters patent granted to me on the 18th day of December, 1860, which, in some particulars, is of costly construction, but which, in the general features of construction, is substantially the same as my present invention. Reference is therefore made to said letters patent for full explanation of such like parts as may be found in both.

To enable others to make and use my improved button-hole cutters, I will proceed to describe the construction and operation of the same, referring by letters to the accompanying drawing, in which—

Figure 1 is a side elevation or plan view of a button-hole cutter embodying the features of my invention; Fig 2, a similar view, with the lower jaw in section and the lever-handles broken off; Fig. 3, a perspective view of the cutting-block removed; and Figs. 4 and 5, plan views of modifications of my invention, showing its adaptability to wire and sheet-metal cutters, &c.

Similar letters indicate like parts in the several figures.

A represents the upper lever-handle for depressing the knife, and B the lower lever and jaw, which is bifurcated in the usual way to admit the introduction of material to be operated upon. This jaw B is also transversely slotted at C to admit of the introduction and vibration of the cutting-blade D, which is pivoted at the rear end by a screw, E, so that it may be readily removed for sharpening, &c. Within the slot C, at its rear end, is located a loose spring, F, which is held or confined in place by the knife and check *a* after it has been secured in position. G is a cutting-block (seen in perspective at Fig. 3), which is secured in place, as clearly seen at Figs. 1 and 2. The parallel surfaces or cutting-faces of said block are cut away, as seen at 1 2 3, Fig. 3, such cut-away portions varying in length to produce varying cuts in material operated upon by the knife in an obvious manner. The two ends of the block G have grooves *a b* at right angles to each other, into which enter a short teat or projection, *c*, and the thumb-screw *g*, by which the block is, when the screw is forced to position, held against displacement or movement, and the said block may be removed and readjusted to present any one of its four sides for the cutting-blade to act upon.

It will be readily seen that the cutting-blade or knife is free to vibrate within its slot within the jaw, and that, being forced down by the lever A upon the cam-face of said knife, the spring F is compressed, so that when pressure is removed the spring, forcing the knife D up, causes the lever A to be returned to its normal position. The knife is steadied and guided in its movement by the slot, and a long circular movement or leverage is obtained by reason of its being pivoted in the rear.

The arm or rear extension of the knife may terminate at the pivot E, or it may extend beyond that point, as seen at Fig. 5, and be provided with a set-screw, H, to limit the movement of the lever A, and thus prevent injury to the cutting-edges of the knife or

knives. As before stated, Figs. 4 and 5 represent more particularly the application of my invention to wire and sheet-metal cutters.

It will be seen that the slot provided for the vibrating knife is designed also to serve as a concealed cell for the reception of
153 the spring F, which, by reason of its location and operation, may be a cheap and operative two-arm spring, and out of the way, and protected against displacement and injury.

I am aware that punches have been made with a vibrating cutter arranged within a slot in the bifurcated jaw, and having a tail extended behind the pivot and beyond the slot, and operated upon by an externally-arranged spring. I do not therefore wish to be understood as claiming such construction; but

What I claim as new, and desire to secure by letters patent, is—

1. A button-hole cutter having its lower bifurcated jaw provided with a slot, C, in which is formed a check, *a'*, in combination with the vibrating knife D, pivoted near its rear end, spring F, arranged in front of the pivot, and concealed in the slot, and lever A, all arranged to operate as and for the purposes set forth.

2. The cutting-block G, formed with intersecting grooves *a b* at either end, in combination with the teat C and thumb-screw *g*, substantially as and for the purpose set forth.

3. The knife D, extended rearward, and provided with a set-screw, H, operated upon by the lever A, substantially as and for the purpose set forth.

The foregoing specification signed by me this 9th day of November, A. D. 1877.

F. C. LEYPOLDT. [L. S].

In presence of—
HUGH FRANKLIN KENNEDY.
EDWARD M. HASTINGS.

154 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 155).

J. D. KING.

Bolt-Trimmers.

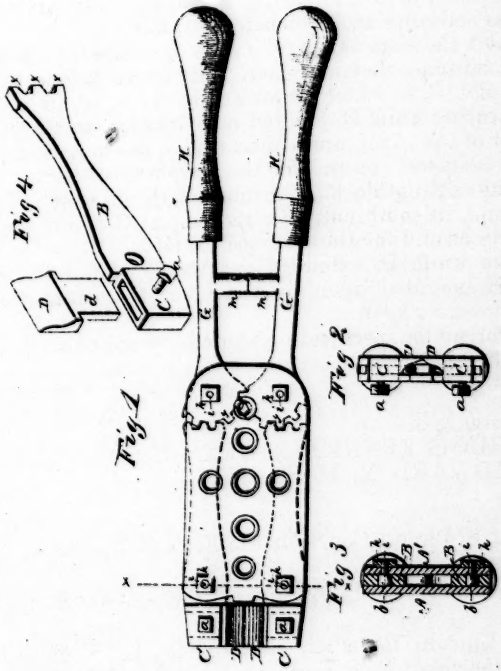
155

No. 157,610.

Patented Dec. 8, 1874.

No. 186. Thompson v. Hall et al. } p. 155

Thompson v. Hall } Dependants' Exhibit King's Patent J. E. B. Sp. Ex. 6 June 1884



WITNESSES

Franck L. Durand

C. L. Euert.

INVENTOR

Jacob D. King.

per Alexander Mason

Attorneys

156 UNITED STATES PATENT OFFICE.

JACOB D. KING, of Fort Wayne, Indiana.

Improvement in Bolt-Trimmers.

Specification forming parts of Letters Patent No. 157,610, dated December 8, 1874; application filed October 27, 1874.

To all whom it may concern:

Be it known that I, J. D. King, of Fort Wayne, in the county of Allen and in the State of Indiana, have invented certain new and useful improvements in bolt-trimmers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a bolt cutter or trimmer, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view of my bolt-trimmer. Fig. 2 is an end view of the same. Fig. 3 is a cross-section through the line *x x*, Fig. 1; and Fig. 4 is a perspective view of one of the cutting-levers.

A A′ represent two plates, between which the operating-levers are pivoted. At one end of the plate A are secured two short posts, *b b*, upon each of which is placed a lever, B. The outer end of said lever forms a socket, C, for the reception of the tenon *d* of the knife or cutter D, said tenon being fastened in said socket by means of a set-screw, *a*. The inner end of each lever B is formed with two or more cogs, *x*, as shown. At the other end of the plate A are also two posts, *b*, upon which are placed two levers, G G, having handles H H attached on their outer ends. The inner ends of these levers G are formed with cogs *y*, that mesh with the cogs *x* on the ends of the levers B. The posts *b* are formed with screws *i* upon their outer ends, on which the plate A′ is placed and fastened by means of nuts *h* on said screws. Each lever G is on its inner side, at a suitable point, provided with a projection, *m*, which strike each other and form stops for the inward movement of the levers.

The cutters D can readily be removed and others substituted, when desired or necessary, or for sharpening.

The plates A A′ may be provided with holes of any suitable shape as ornaments, and to lessen the weight of the instrument.

Having thus fully described my invention, what I claim as new, and desire to secure by letters patent, is—

The pivoted cog-levers B B, sockets C C, cutters D D, with tenons *d*, and the set-screw *a*, in combination with the plates A A and the pivoted cogged levers G G, all substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of October, 1874.

JACOB D. KING.

Witnesses:
A. H. CARIER.
R. S. ROBERTSON.

157 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 158.)

159 UNITED STATES PATENT OFFICE.

JOHN HELLWIG, of McGregor, Iowa.

Improvement in Bolt and Rivet Cutters.

Specification forming part of Letters Patent No. 188,133, dated March 6, 1877; application filed October 11, 1876.

To all whom it may concern:

Be it known that I, John Hellwig, of McGregor, in the county of Clayton and State of Iowa, have invented a new and useful improvement in bolt and rivet cutters, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side view of my tool, partly in section, showing the positions of the parts when the cutting-jaws are open. Fig. 2 is a like view when the cutting-jaws are shut. Fig. 3 is a longitudinal section in the plane *x x*, Fig. 1. Fig. 4 is a cross-section in the plane *y y*, Fig. 2.

Similar letters indicate corresponding parts.

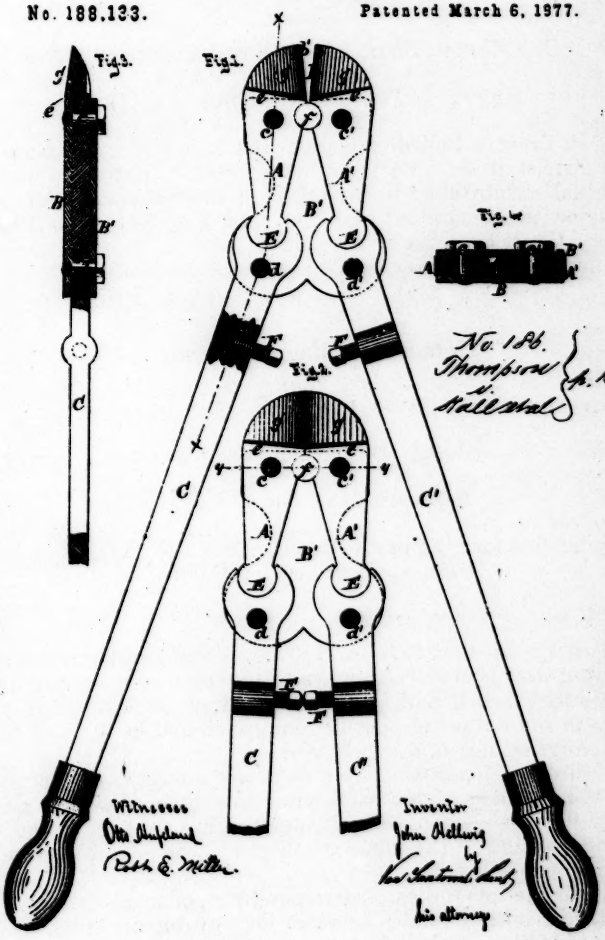
This invention relates to tools for cutting off bolts, rivets, wire, and other like articles of metal; and my invention consists in combining, with the cutting-jaws, which are pivoted to supporting-plates, and with the handles of the jaws, stops, or shoulders, as will more fully hereinafter appear.

My invention also consists in combining, with the cutting-jaws, a washer arranged between the two cutting-jaws, the object of which will be fully hereinafter described.

J. HELLWIG. 158

BOLT AND RIVET CUTTER.

No. 188,133. Patented March 6, 1877.



No. 186. Thompson v. Hall et al. } p. 158

Thompson v. Hall } Defendants' Exhibit Hellwig Patent J. E. B. Sp. Ex. 6 June 1884

In the drawing, the letters A A′ designate two jaws, which are provided with cutting-edges *b b′*, and are mounted on pivots *c c′*, between two plates, B B′. C C′ are two levers, at one end of which are formed handles, while at the other end they are mounted on pivots *d d′*, between the said plates B B′. The adjacent ends of the cutting-jaws A A′ and the lever-handles C C′ are made to interlock with each other by means of a ball-and-socket joint, E, or in any other suitable manner, so that by moving the handles the said jaws can be opened and shut, and by reason of the peculiar arrangement of the parts great force can be exerted on the jaws with little expenditure of power.

It will be noticed that by arranging the cutting-jaws A A′ between the two plates B B′ the jaws are prevented from being twisted out of place or moving laterally, and hence the cutting-edges of the jaws are not liable to pass each other when the jaws are strained.

On one side or surface of each of the cutting-jaws A A′ is formed a stop or shoulder, *e*, which projects over or beyond the adjacent edge of the plate B, and is so arranged that when the jaws are opened a certain distance the shoulders *e* strike against the said edge of the plate B, and by this means the outward movement of the jaws is regulated. Each of the lever-handles C C′ carries a set-screw, F, and when the said handles are shut for the purpose of closing the cutting-jaws A A′, these set-screws strike against each other, and serve to limit the inward motion of the handles and of the jaws.

It is obvious that the said screws F can be adjusted with proper relation to the cutting-edges *b b′* of the jaws, and changed when the said edges are ground.

One side or surface of the cutting-jaws A A′ is beveled or chamfered, as seen at *g*, Fig. 3, and the object of thus shaping the jaws is to permit of holding the tool at an angle to the work to be performed, and especially when the work is on a flat surface—as, for instance, when it is desirable to cut off a rivet from a flat plate, the rivet can be cut off smooth without its being necessary for the operator to lay the tool down on the plate, as heretofore, and hence the operator has his hands free, and is better enabled to perform the work.

Between the cutting-jaws A A′ is arranged a washer, *f*, which, in the example shown, has the form of a disk, and is let into a recess formed partly in one and partly in the other jaw. By the action of this washer *f* neither of the jaws A A′ is permitted to move alone or independently of the other, and thus the operation of cutting by the jaws is greatly facilitated. The said washer *f* is arranged in the plane of a line drawn through the pivots *c c′*, on which the cutting-jaws move, and it is concealed by the side plates, B B′.

I prefer to construct the several parts of my tool, excepting the handles, of cast-steel, so that it is light, strong, and durable, the cutting-edges *b b′* being made somewhat stronger than the remaining parts, and the whole being put together by means of four pivots, *c c′ d d′*, it can be readily taken apart and put together.

What I claim as new, and desire to secure by letters patent, is—

1. The combination of stops or shoulders *e* with the cutting-

160 ting-jaws A A′ and the supporting-plates B B′, substantially as and for the purpose described.

2. The combination, with the cutting-jaws A A′, of a washer, *f*, arranged between the said jaws, substantially as described, and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 3d day of October, 1876.

JOHN HELLWIG. [L. S.]

Witnesses:
CH. H. QUIGLEY.
T. O. JONES.

161 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit in my — in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

162 UNITED STATES PATENT OFFICE.

MOSES C. JOHNSON, of Milford, Connecticut, assignor to Henry G. Thompson, of same place.

Cutting-Pliers.

Specification forming part of Letters Patent No. 232,975, dated October 5, 1880; application filed June 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, Moses C. Johnson, of Milford, county of New Haven, State of Connecticut, have invented an improvement in cutting-pliers, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to cutting-pliers, and is an improvement on that class of pliers represented in United States patent No. 209,677, dated November 5, 1878, granted to T. G. Hall, to which reference may be had. In that invention either of the two hand-levers may be turned on its pivot without turning the other, and the tool-body formed by the face or covering plates is permitted to vibrate or turns more or less with relation to the handles, and the central space between the cutting-faces of the jaw-levers, when the pliers are taken in the hand to be used, drops more or less out of line with the central line of the handles, making, as it were, a loose joint midway between the ends of the pliers.

One of the objects of my invention is to construct a stiff pair of pliers, or pliers in which the hand and jaw levers shall each be compelled to move positively in an opposite direction to the movement of its fellow, or a pair of pliers in which the tool-body shall not of itself swing or vibrate upon the pins or studs holding the hand-levers.

In the patent above referred to the end of wire or other thing cut off by the cutters drops into and injures the spring that opens the jaw-levers. This I obviate by providing each jaw-lever with a lip to cover or bridge the space between the jaws as the jaw-levers are closed.

My invention consists in the combination and arrangement of parts for effecting these ends, as hereinafter specified and claimed.

Figure 1 represents, in side elevation, a pair of cutting-pliers containing my improvements; and Fig. 2, a like view with one of the body or side plates removed.

The body of the pliers is composed of two side plates, *a b*. These side plates are fixed together by the screws 2 3 4 5. Of these screws, those 2 3 serve as the fulcra of the jaw-levers *c d*, having at their ends the usual cutters or cutting-surfaces *c' d'*. Each of these jaw-levers has a lip, *l*, and the end of one meets the end of the other lip just as or just before the two cutting-edges *c' d'* separate the wire or other metal end to be cut off by them, thus closing the space between the said jaw-levers and side plates, in which is placed the spring *f*, and preventing the entrance into said space of hard pieces of wire or other articles that would clog the pliers. These lips also serve another essential purpose—viz., that of holding the ends of the spring from displacement and obviating the employment of a separate pin or stud to hold the said spring at one end, as heretofore common.

The screws 4 5 serve as the fulcra for the hand-levers *g h*, having short arms *g' h'*, to act upon the ends of the longer arms of the jaw-levers and turn them on their fulcra to close the jaws and bring the cutting-edges together. The spring *f* opens the jaws the instant the clasping pressure on the hand-levers is relaxed.

In order to move the jaw-levers equally at all times and prevent the jaw-levers and body of the pliers turning on the handles, I have provided one hand-lever with a prong, *m*, having a rounded end that enters a rounded notch in the opposite lever. This one prong and its notch are always in engagement, and so connect the two levers that the body of the pliers cannot vibrate on the screws 4 5, but, on the contrary, the two levers may turn each on its own pivot, both levers always turning the same distance, but in exactly opposite directions. This connection between the two hand-levers, as described, insures a stiff pair of pliers, that can be handled more readily and accurately than the old form of cutting-pliers referred to, and which are more positive as to the movement of the cutting-jaws.

I am aware, in bolt-cutters, where the short ends of the hand-levers are jointed with the long ends of the cutting jaw-levers, that a series of teeth or cogs have been interposed to cause the hand-

levers to be geared together; but in such bolt-cutters one single tooth and notch would not operate to always keep the two hand-
163 levers locked together as to their movement in unison, as is the case with my one prong, *m*, rounded at its end and inserted within a rounded notch.

I claim—

The body composed of the side plates, *a b*, the independent fulcra 2 3 4 5 for the jaw-levers and hand-levers, the jaw-levers provided with cutting-edges and with lips *e*, and the hand-levers having short arms *g' h'*, and a prong and notch always in engagement, as described, combined with the V-shaped spring, held, as described, by the lips of the jaw-levers, all as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MOSES C. JOHNSON.

Witnesses:
SAM'L LLOYD.
GEO. E. FRISBIE.

(Here follows diagram marked pp. 164 & 165.)

166 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

167 *Duplicate.*

Engineer and director: Ch. Desnos, former student of the École Centrale (Central School).

Office of French and foreign patents and trade-marks, Paris, 11 Boulevard Magenta.

Descriptive memoir filed as basis for the application for letters patent for fifteen years by Mr. Thomas Greenman Hall for "improved system of plyers."

My invention has for—object an improved system of cutting plyers of very powerful action, being at the same time of a less cost than (that of) those used up to the present time.

My invention consists in placing the cutting parts of the plyers at the extremity of levers which are moved by the handles of the plyers, which are both pivoted.

(No Model.)

M. C. JOHNSON.

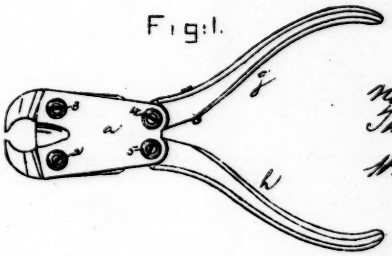
Cutting Pliers.

164

No. 232.975. Patented Oct. 5, 1880.

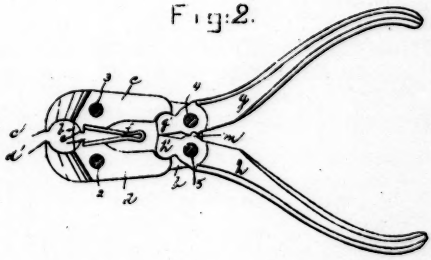
Thompson vs Hall { Defendants' Exhibit No. 12 Johnson's Patent J. E. B. R. Ex. 7 Apl. 1884

Fig: 1.



No. 186 Thompson vs Wall et al } p. 164

Fig: 2.



WITNESSES.

A. Reynolds

L. F. Connor

INVENTOR.

Moses C. Johnson.

By Crosby Gregory Attys

The different pieces composing the plyers are confined between two plates, and a transverse pin prevents the cutting edges of the plyers from coming into contact the one with the other.

In the drawings annexed, Fig. 1 shows an elevation of a pair of plyers of my system, from which one of the plates is removed to show the different parts. Fig. 2 shows a side view of the same.

168 In these different figures the letters of reference designate the same parts.

a and *b* are the jaws of the plyers carrying cutting edges, as is ordinarily the case. These jaws are placed at the outer end of levers *c d*.

e is the pivot of the lever *c* and *f* the pivot of the lever *d*. The jaws are held open by a double-branched spring, *g*, placed between the levers.

i and *k* are the handles, which are, respectively, pivoted on pivots *l* and *m*, so that the handles work like levers,

The front end of the lever "*i*" carries a dog, *n*, which actuates the lever *c*. A similar dog, *o*, carried by the lever *k*, in like manner actuates the lever *d*.

These different pieces are mounted between the cheeks or plates *p p*. The pivots *e f* of the lever *c d* and the pivots *l* and *m* of the handles *i k* are threaded at one of their ends, so as to screw into one of the two plates *p*. In this way the different members of the plyers are solidly secured together.

g is a pin placed upon the lever *k*, and of such length that the handle *i* comes in contact with it at the moment when the jaws of the plyers are about to meet. Thus all destruction due to chock or to crossing of the jaws is avoided.

169 For the purpose of securing a uniform movement of the jaws the handles *i* and *k* carry teeth *o'* near their center of oscillation. These teeth engaging with each other equalize the pressure exerted upon the handles.

The plyers are used by forcing the handles *i* and *k* to approach each other. Each of the jaws *a* and *b* is thus caused to move by the play of the double-working levers which correspond with them, and the pressure on all the body placed between the jaws is thus considerably augmented.

The various parts of the plyers are solid and not susceptible of breaking under any force applied by the hand ; moreover, the plyers can easily be taken apart and put together for the sake of repairs, and the form of the plyers *are* such that the position of the jaws and handles can be reversed without any inconvenience.

En resume, I claim by the present application for letters patent the improved system of plyers described above and characterized—

1st. By the combination of levers carrying cutting jaws, with handles (*manches a talons*) and mounting plates, as described above.

2nd. By the arrangement of the arresting bolt preventing the contact of the jaws of a plyer, as described above.

3rd. By the arrangement of the mounting plates of the
170 plyers connected together by the pivot bearings of the levers, as has been explained above.

4th. By the arrangement on the handles of the plyers of teeth equalizing the action of the jaws, as described above.

By procuration of Mr. Hall.

Paris, February 20, 1880.

(Signed) A. DESNOS.

Seen so as to be annexed to the letters patent for fifteen years taken out on February 20, 1880, by Mr. Hall.

Paris, April 12, 1880.

For the minister and by delegation.

(Signed) GIRARD,

The Director of Interior Commerce.

Certified according to law for sending away.

[Seal Agriculture & Commerce, &c., &c.]

(Signature) ——— ———,

Chief of Delegated Bureau.

(Scroll and two autographs.)

171 [Endorsed :] Thos. G. Hall. French patent. Thompson *vs.* Hall. Defendants' Exhibit Hall's French Patent. J. E. B., sp. ex'r. 3 Ap'l, 1884. Translation.

172 DEFENDANTS' EX. HALL'S FRENCH PATENT.

HALL'S EXHIBIT No. 11. September 5th, 1881. W. H. B.

THOMPSON *vs.* HALL.

20, 2, 80.

Tax paid 12 Feb, '81 ; receipt No. 2928.

Pat. No. 135,176.

Ingénieur Directeur, Ch Desnos, Ancien Elève de l'Ecole Centrale.

Loi du 1 July, '44 ; Art. 3233.

Duplicata.

Office des Brevets d'Invention Français et étrangers et des marques de fabriques.

PARIS, 11 BOULEVARD MAGENTA.

Memoire descriptif, déposé à l'appui de la demande, d'un brevet d'invention de quinze ans, formée par Mr. Thomas Greenman Hall pour " Systeme de pince reperfectionnées."

Mon invention a pour objet un systeme perfectionné de pinces coupantes offrant une grande puissance d'action, tout en étant d'un prix de revient moindre que celles employées jusqu'à présent.

Mon invention consiste à placer les parties coupantes des pinces à l'extremité de leviers qui sont actionnés par les manches des pinces qui sont articulés tous deux. Les différentes pièces composant les pinces sont maintenues entre deux plaques et une goupille transversale empêche les tranchants des pinces de venir en contact l'un avec l'autre.

Dans les dessins ci-joints :

La fig. 1 montre une élévation d'une paire de pinces de mon systeme, dans laquelle une des plaques est enlevée pour laisser voir les différentes pièces.

173 La fig. 2 montre une vue d côté de la même.

Dans ces différentes figures les mêmes lettres de reference designent les mêmes parties *a* et *b* sont les mâchoires des pinces portant des tra-chants comme cela a lieu ordinairement ; ces mâchoires sont placées à l'extremité exterieure de leviers *c d*.

e est le pivot du levier *c* et *f* le pivot du levier *d*.

Les mâchoires sont maintenus ouvertes par un ressort à deux branches *g* logé entre les leviers.

i et *k* sont les manches qui sont articulés respectivement sur des goupilles *l* et *m*, de maniere que les manches agissent comme des leviers.

L'extrémité antérieure du levier " *i* " porte un talon *n* qui agit sur le levier *c* ; un talon semblable *o* porté par le levier *k* agit de même sur le levier *d*.

Ces différentes pièces sont montées entre les éclisses ou plaques *pp* ; les pivots *e f* des levier *c d* et les pivots *l* et *m* des manches *i*, *k*, sont filetés à l'une de leurs extremités de mannière à se visser dans l'une des deux plaques *p*, de cette maniére les differents organes des pinces sont solidement assemblés.

174 *q* est uue goupille placer sur le levier *k* et de tongues telle que le manche *i* vient y luter au moment ou les tranchants des mâchoires vont se rencontrer ; on évite ainsi toute dépradation dû au choc ou au croisement des mâchoires.

Afin d'obtenir un mouvement uniforme des mâchoires les manches *i* et *k* portent des ergots *o'* près de leur centre d'oscillation ; ces ergots engrenent l'un sur l'autre égalisent la pression exercée sur les manches.

On se sert des pinces en forçant les manches *i* et *k* à se rapprocher l'un de l'autre ; chacune des mâchoires *a* et *b* est ainsi mise en mouvement par le jeu de leviers à double effet qui lui correspond et la pression sur tout le corps placé entre les mâchoires se trouve ainsi considerablement augmentée.

Les differentes parties des pinces sont solides et non susceptible de se briser sous tout effort exercé à la main ; de plus, les pinces peuvent être facilement démontées et remontés dans le cas de reparations et la forme des pièces est telle que la position des mâchoires et des manches peut être intervertie sans inconvénient.

175 En resume je revendique par la présente demande de brevet le systême perfectionné de pinces, ci-dessus décrit et caracterisé :

1°. Par la combinaison de leviers portant les mâchoires tranch-

antes, avec des manches à talons et des plaques de montages, comme ci-dessus décrit.

2°. Par la disposition de la goupille d'arrêt empêchant le contact des mâchoires des pinces comme ci-dessus décrit.

3°. Par la disposition des plaques de montage des pinces reliées entre elle par les pivots d'oscillation des leviers, comme il a été expliqué ci-dessus.

4°. Par la disposition sur les manches des pinces, d'ergots égalisment l'action des mâchoires, comme ci-dessus décrit.

Par procuration de Mr. Hall.

Paris, le 20 Fevrier, 1880.

(S'd) A. DESNOS.

Vu pour être annexé au brevet de quinze ans pris le 20 Février 1880 par le Mr. Hall, Paris, le 12 Avril, 1880.

Pour le ministre et par délégation.

Le directeur du commerce intérieur.

Signé GIRARD.

Pour expédition certifie conforme le chef de bureau délégué.

Un rôle et deux autres graphiés.

[Seal Agriculture & Commerce, &c., &c.]

DUNPRY.

(Here follows diagram marked p. 176.)

177 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

(Here follows diagram marked p. 178.)

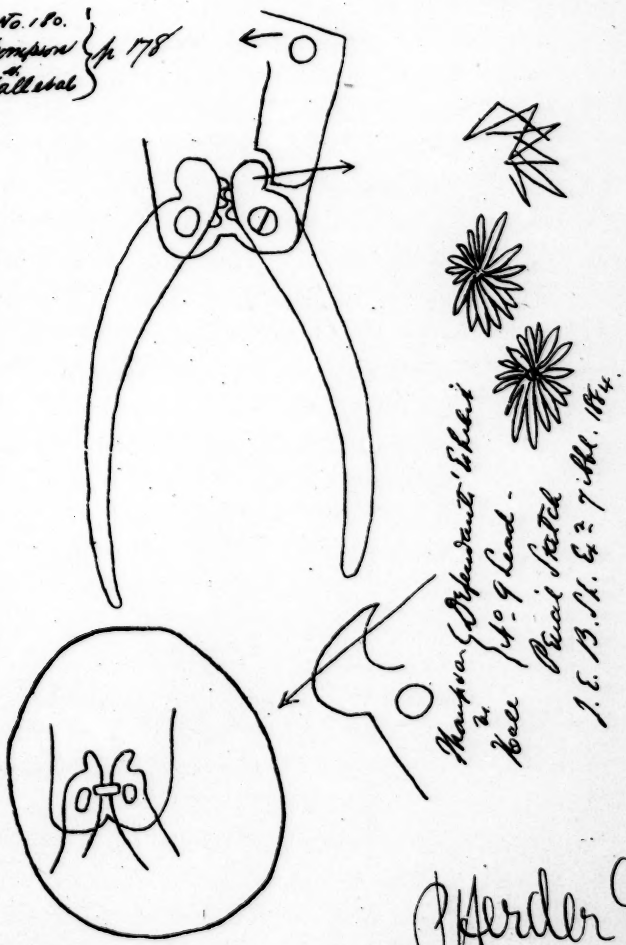
179 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and

Halli Exhibit - No 9
Sep. 5th 1881 W.H.B.

No. 180.
Thompson
v.
Hallebal } p 178



P Herder Esq

is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

180 HALL'S EXHIBIT No. 13. Oct. 12, 1881. J. E. B.

Riggs House, Washington, D. C. C. W. Spofford, proprietor.

14 MARCH, 1881.

DEAR HALL: I have found a man that I have been looking for, who is the friend of the particular man inside that I want to get at. I have promised to pay him $100 at once, & shall get the order & notice of interferance this week and go over to take testimony immediately.

The arrangements I have made will, if we get any decent testimony, such as I expect, insures us a clean victory very soon & will not cost us as much even as we supposed.

I cannot by letter explain as fully as I can when I see you.

181 Let your friends send me check for $125 immediately, & if convenient let it be certified. I will give you a satisfactory account of matters when I see you, which will be in a few days. Telegraph me on receipt that check is mailed, & let this be strictly confidential. This situation is positive & important.

Yours truly, F. A. P.

[Endorsed:] Thompson *vs.* Hall. Defendants' Exhibit No. 13. Prescott letter. J. E. B., sp. ex'r. 7 Ap'l, 1884.

182 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

183 MILFORD, CONN., *Jan. 12th*, 1881.

Estate of Interchangeable Tool Company to Henry G. Thompson, Dr.

To engine, boiler, shafting, steam-heating apparatus, & steam pump, belting, &c. ---------- $3,500 00

STATE OF CONNECTICUT, } ss:
County of New Haven, }

MILFORD, *Jan.* 12, *A. D.* 1880.

Personally appeared Henry G. Thompson, and, being duly sworn, declares that the above claim is, to the best of his knowledge and belief, just and true.

GEORGE M. GUNN,
Commissioner of Superior Court for New Haven County.

184 [Endorsed:] Thompson *vs.* Hall. Defendants' Exhibit Thompson's Claim No. I. J. E. B., sp. ex'r. 24 May, 1884.
9. Rec'd Jan'y 13, 1881.

185 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

186 STATE OF CONNECTICUT, } ss:
County of New Haven, }

MILFORD, *Jan.* 12*th*, *A. D.* 1881.

Personally appeared Henry G. Thompson, of the town of Milford county and State as aforesaid, and, being duly sworn before me, declares that he has begun suit in the U. S. district court for the disr trict of Connecticut against the Interchangeable Tool Company foe a violation of section four thousand nine hundred and one of the Revised Statutes of the United States and for a recovery for the us, of the United States and himself of the sum of two million dollars, being the penalty imposed by said law for its violation, and he makes oathe that the said sum is, to the best of his knowledge and belief, due himself and the United States for such violation of the said statute, and he herewith files his claim and the claim of the United States to said sum with the honorable commissioners on the insolvent estate of the Interchangeable Tool Company.

GEORGE M. GUNN,
Commissioner of Superior Court for New Haven County.

187 [Endorsed:] Thompson *vs.* Hall. Defendants' Exhibit Thompson's Claim No. II. J. E. B., sp. ex'r. 24 May, 1884.
9. Rec'd Jan'y 13, 1881. Rejected. N. G. Pond, commissioner.

188 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the east-

ern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

189 Rec'd by commissioners.

JANUARY 13, 1881.

The Interchangeable Tool Company, Dr., to Chas. A. Tomlinson, assignee of A. Gustam.

Salary from M'ch 1st, 1880, until Sept'r 20th, 1880, at the rate of fifteen hundred dollars per year		833
To travelling expenses from April 30 until Sep'r 1st		515
Cash advanced to meet pay-roll about Sep'r 15th		150
Sundry bills paid on ac. co'y:		
C. J. Buchan, commissions & travelling expenses	247 10	
Paid W. B. Stoddard, retainer before assignment	125 00	
		372 10
		1,870 10

190 STATE OF CONNECTICUT, *New Haven County,* } *ss:*

TOWN OF MILFORD, *Jan'y* 14, 1881.

Personally appeared Augustus Gustam and made oath in due form of law to the correctness of the within account before me—

JOHN W. TOWAR,
Notary Public.

[Endorsed:] #29. Thompson *vs.* Hall. Defendants' Exhibit Gustam's Claim. J. E. B., sp. ex'r. 24 May, 1884.

[In pencil.]

CR.

A. Gustam, the balance on sheet Sept. 20, made by ledger, 310.24, & Stoddart, 125.00	435 24
By salary after Aug. 31 to Sept. 20	82 00
	517 24
DR.	
To am't allowed Troom	200 00
	317 24
Cash for workman, Hall & Oliver to ac't for it	150 00
Trardly, July & Aug., 53 d's, @ $2.31	122 43
	$589 67

191 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

192 Mr. Gustam to surrender the machinery to Tompson on condition that Mr. Thompson gives him the use of it one year with the priviledge of purchess at $3,500 at the end of the year.

Mr. Thompson to give Gustam the use of any patent right he may have in the nippers on condition that Gustam gives Thompson the entire right of the English, French, & German patents or foreign agency in the nippers, and Mr. Thompson shall give Gustam an order for 100 doz. of each size of the nippers at such prices as may be agreed upon.

192½ [Endorsed:] Thompson *vs.* Hall. Defendants' Exhibit Thompson and Gustam's Plan. 26 May, 1884. J. E. B., sp. ex'r. H. G. Thompson & Gustam.

193 U. S. Circuit Court for the Eastern District of New York.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

I, B. Lincoln Benedict, clerk of the U. S. circuit court for the eastern district of New York, do hereby certify that the annexed is an original exhibit filed in my office in the above-entitled cause, and is herewith transmitted with the record on appeal to the U. S. Supreme Court by order of this court.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

194 UNITED STATES OF AMERICA, *Eastern District of New York,* } *ss:*

I, B. Lincoln Benedict, clerk of the circuit court of the United States of America for the eastern district of New York, do hereby certify that the writings annexed to this certificate is an original exhibit in the suit of Henry G. Thompson *vs.* Thomas G. Hall *et al.* filed in my office and transmitted to the United States Supreme Court with the record on appeal by order of this court.

In testimony whereof I have caused the seal of the said court to be hereunto affixed, at the city of Brooklyn, in the eastern district

of New York, this 24th day of October, in the year of our Lord one thousand eight hundred and eighty-five.

[The Seal of the Circuit Court, Eastern District of New York.]

B. LINCOLN BENEDICT, *Clerk.*

195 COMP'T'S EXHIBIT INTERFERENCE RECORD No. 2. J. E. B., Sp. Ex'r. 27 June, 1884.

THOMPSON *vs.* HALL.

(2–175.)

6207. J. Edgar Ball.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the decision of the Secretary of the Interior, March 13, 1884, in the matter of the appeal of Thomas G. Hall in the interference of Hall *vs.* Johnson, improvement in cutting nippers.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of March, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

BENJ. BUTTERWORTH,
Commissioner.

196 E. M. D. J. K. McC.

DEPARTMENT OF THE INTERIOR,
WASHINGTON, *March 13th*, 1884.

The Commissioner of Patents.

SIR: I have considered the appeal of Thomas G. Hall, by his attorney, from the decision of your predecessor in the interference between the application of Hall and the patent issued to Moses G. Johnson for improvement in cutting nippers.

I concur in the view of the case as set forth in the decision of the Commissioner and do not regard the testimony on behalf of Hall as sufficient to overcome the *prima facie* evidence in favor of Johnson's right to the invention growing out of the issue to him of a patent therefor.

The decision of the Commissioner is affirmed. The papers and

exhibits belonging to the files of your office are herewith returned.
Very respectfully, H. M. TELLER, *Secretary*.

Ex'd: A. H.

197 [Endorsed:] 82. 57. Office of Com'r of Patents. Received Mar. 14, 1884. U.S. Patent Office. Secretary's decision. Hall *vs.* Johnson. March 13, 1884. Recorded, page 97.

198 COMPLAINANT'S EXHIBIT INTERFERENCE RECORD. H. E. T., Special Examiner.

U. S. Circuit Court, East. District of N. Y.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

(2–175.)

12422.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the decision of the Commissioner, May 28, 1883, in the matter of the interference — Hall *vs.* Johnson, for improvement in nippers.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 11th day of June, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and seventh.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

199 U. S. PATENT OFFICE.

HALL *v.* JOHNSON

Improvement in Nippers.

Appeal from the examiners-in-chief.

Application of Thomas G. Hall. Filed April 27, 1881. Patent No. 232,975, granted Moses C. Johnson October 5, 1880.

Mr Amos Broadnax, for Hall; Mr. Theo. G. Ellis, for Johnson.

The matter in controversy is defined as follows:

"The body composed of the side plates, the independent fulcra for

the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips, and the hand levers having short arms and a prong and notch always in engagement, combined with the V-shaped spring held by the lips of the jaw levers."

The elements here claimed, when brought together in combination as set forth in the specifications of the respective parties, form a cutting nipper.

200 This combination was first produced in May, 1879, at the shop of the Interchangeable Tool Company, in the city of New York, of which Mr. Hall was president and Mr. Johnson an employé.

Prior to its production Mr. Hall had invented and had secured by patent a nipper containing all of said elements except two, viz., the prong and notch connection between the hand levers and the projections or lips over the spring. That nipper did not work satisfactorily because its cutting jaws did not act with uniformity. The spring in said nipper was held in place by a block fastened to the side plate, and the hand levers, having independent fulcra, did not operate upon the cutting jaws with uniformity. The nipper, therefore, although seemingly perfect, was imperfect and unsatisfactory in its action. The Interchangeable Tool Company, having purchased Hall's patent, sought some means by which to remedy the defects, but were not successful until Mr. Johnson produced his model, Exhibit C, embracing all of the elements mentioned in the claim at issue.

Mr. Hall, while admitting that the model made by Mr. Johnson was the first which embraced all of said elements, claims that
201 the two elements above mentioned, which were added to the combination covered by his patent of November 5, 1875, No. 209,677, were suggested by him to Mr. Adams, the superintendent of the Interchangeable Tool Company, and by the latter communicated to Mr. Johnson, who afterwards embodied them in the new combination, which is the subject of this contest.

Mr. Johnson claims that the new combination was invented by himself, and that he added the new elements to the combination covered by Hall's patent without suggestions from any person.

The testimony of the respective parties material to this case has reference to the said two new elements and their embodiment in the combination here claimed.

Mr. Hall claims to have changed the adjustment of the spring in April or May, 1879, by throwing out the block and screw which fastened the spring to the side plate and seating the upper ends in notches in the jaws. I do not understand, however, that he claims at that or any other time to have conceived of the idea of having projections over the ends of the spring, which would not only
202 hold the spring in place, but prevent the particles cut off by the jaws from falling down between the ends thereof so as to prevent the successful working of the nipper.

On the contrary, counsel for Hall has left with me a model of a nipper without such projections for the purpose of showing that they are unnecessary.

Mr. Hall testifies that he first conceived of a gearing connection between the hand levers of a nipper on January 1st, 1877, and on that day made a model having a pin in one handle and a recess in the other; that in the fall of 1878 he explained the same to Mr. Crane and in March, 1879, to Mr. Oliver and Mr. Judge, in the office of the latter, in New York; that Mr. Judge at that time made a rough sketch illustrative of his conception; that after the employment of Mr. Adams, in April following, he explained the same to him and directed him to try it; that Mr. Adams did try it, and, finding the nipper worked satisfactorily, the company adopted the new combination and proceeded to manufacture a large number of them—forty or fifty thousand—with spring adjusted as last above mentioned and a gearing connection between the hand levers.

203 Mr. Crane testifies that Mr. Hall explained to him, in the fall of 1878, the pin and recess connection between the hand levers, and told him about his experiments therewith.

Oliver and Judge testify that Hall explained to them, in the office of the latter (they do not agree as to the date, but both fix the time as prior to April, 1879), the pin and recess connection between the hand levers, and that Mr. Judge made a rough sketch to illustrate the same.

Mr. Oliver testifies that Mr. Hall at that time expressed doubts about the practicability of such a connection, and stated that he thought he could devise a better way to produce uniform action of the cutting jaws.

The testimony shows that after the employment of Mr. Adams by the Interchangeable Tool Company, and in May, 1879, an experiment was made in the shop of said company to test the practicability of the pin and recess connection between the hand levers, and that it did not prove successful.

Mr. Adams testifies that said test was made by himself at his own suggestion and not upon the suggestion of Mr. Hall or any other person; that Mr. Hall never made any suggestions to him about a gearing between the hand levers, but, on the contrary, dis-

204 couraged all of his "propositions for improvements."

Mr. Hall does not claim to have made any suggestions to Mr. Johnson about the improvement of his nipper. Mr. Johnson was employed by the Interchangeable Tool Company in April, 1879. Prior thereto he was employed by Jenks & Co., and did the principal part of the work for said company in making a model for the Interchangeable Tool Company on the plan covered by Hall's patent. He claims to have conceived of the prong and notch connection between the hand levers in the fall of 1878, and to have discovered the necessity for the projections over the spring in the winter following. He fixes the time of his conception of the entire invention in May, 1879, during which month he made a model embodying the same.

That he did make a model during that month embodying all of the elements claimed is shown by all the witnesses who testify on that point.

Mr. Adams testifies that Mr. Johnson invented this combination and was credited with the invention by the workmen in the shop.

Mr. Gustam, the secretary of the company at that time, testifies to the same effect.

205 Mr. Whittlesey, who occupied a bench near to Mr. Johnson in the shop, testifies that Johnson made the invention and was generally credited therewith among the workmen.

The question to be decided in this case is not who was the prior inventor of this combination, but who was the inventor thereof.

Where two persons, disassociated, make substantially the same invention the inquiry is, Who made the invention first? but where, as in this case, two persons claim to have first originated the ideas embodied in a particular model the question is, Which of said persons shall be considered entitled to the invention? He who first produces a device is entitled to be considered the inventor thereof, unless it be shown that another person was first to conceive of the invention and was using due diligence in completing it, or suggested to the one who first produced the device all of its parts, so that in producing it he was simply carrying out the suggestions of another.

On this subject Mr. Justice Clifford said:

"The settled rule of law is that whoever first perfects a machine is entitled to the patent and is the real inventor, although
206 others may have previously had the idea and made some experiments towards putting it in practice. He is the inventor and is entitled to the patent who first brought the machine to perfection and made it capable of useful operation." (Agawam Co. *v.* Jordon, 7 Wall., 583.)

Mere suggestions, even if they point toward a result, are not sufficient to entitle one making them to be considered the inventor. In order that he may claim the benefit of what another does his suggestions must leave nothing for the mechanic to do but to work out what has been suggested.

On this point Judge Nelson, in instructing the jury in the case of Pitts *v.* Hall (2 Blatch., 229), said:

"Now, there is no doubt that a person to be entitled to the character of an inventor, within the meaning of the act of Congress, must himself have conceived the idea embodied in his improvement. It must be the product of his own mind and genius and not of another's. Thus, in this case the arrangement patented must be the product of the mind and genius of Casey, and not of Bower's or Fowler's. This is obvious to the most common apprehension.

207 At the same time it is equally true that, in order to invalidate a patent on the ground that the patentee did not conceive the idea embodied in the improvement, it must appear that the suggestions, if any, made to him by others would furnish all the information necessary to enable him to construct the improvement. In other words, the suggestions must have been sufficient to enable Carey in this case to construct a complete and perfect machine. If they simply aided him in arriving at the useful result but fell short of suggesting an arrangement that would constitute a complete machine, and if after all the suggestions there was something left for him to devise and work out by his own skill or ingenuity in order to complete the management, then he is, in contem-

plation of law, to be regarded as the first and original discoverer. On the other hand, the converse of the proposition is equally true. If the suggestions or communications of another go to make up a complete and perfect machine, embodying all that is embraced in the patent subsequently issued to the party to whom the suggestions were made, the patent is invalid because the real discovery belongs to another."

208 (Allen *v.* Rawson, 1 Manning, Granger & Scott, 574.
Alden *v.* Dewey, 1 Story, 338.)

Combinations may be made up of parts entirely new or entirely old, or part new and part old; but if the parts when brought together so co-act as to produce a new and beneficial result, the party so bringing them together has made an invention and is entitled, if he makes claim thereto, to a patent therefor.

If new elements are added to an imperfect combination, and if by the addition of such new elements the combination is made perfect and operative, the person who adds such elements is entitled to claim the new combination. On this subject Judge McKenna said:

"It is scarcely necessary to support this conclusion by a restatement of the familiar principle that a combination, all the elements of which are old, is patentable if a new or improved result is thereby obtained, or that a combination all the elements of which, except a single one, have been before used together is also the subject of a patent. The whole combination is to be regarded as a unit,

209 and if all its essential elements have not before been embodied and employed together it is to be taken as an original invention."

(Watson *v.* Cunningham, 4 Fish., 529.)

Johnson was granted a patent for the invention here in controversy October 5, 1880. Hall is an applicant for a patent for the same invention. It has been held by my predecessors, as well as by myself, that where a patent has been granted for an inventions in order that an applicant may receive a patent for the same invention he must make out such a case as would defeat the patent already granted.

Richardson *v.* Denza, C. D. 1870, p. 156.
Gray *v.* Hale *et al.*, C. D. 1871, p. 129.
Baldwin *v.* Bigelow, C. D. 1875, p. 55.
Soci *v.* Barnes, decided July 6, 1882 (Mss.).

Johnson produced the model which first embodied the invention in controversy, and must be held to be the inventor thereof, unless it be found that the suggestions which Hall made in relation to the pin and recess connection between the hand levers were brought to his attention, and under the instruction of another he wrought out mechanically a device which when completed simply embodied Hall's idea.

210 The testimony does not show that Hall ever suggested to Johnson directly any means by which the combination

patented to him, as aforementioned, could be improved, and the witness Adams, through whom Hall claims that such suggestions were made, denies that he ever communicated any suggestions from Hall to Johnson or that he ever received any to communicate. The testimony shows that experiments were made with pins, three in one lever and two in the other, and that uniform action of the jaws was sought to be produced by the interlocking of said pins, but Adams testifies that this experiment was made at his own suggestion, and was not successful.

If it was shown, however, that the suggestions of Hall were communicated to Johnson I do not think it would materially affect the case, because said suggestions were not of such character as to leave nothing for Johnson to do but to embody them in the device here claimed. In a mechanical sense a pin and recess connection between the hand levers of the combination suggested by Hall and the prong and notch gearing first shown by Johnson are quite
211 different. As shown by Johnson, levers are so formed as to bring the parts near together, and the prong and notch are integral therewith, while Hall had levers of the same shape as formerly, and the pin inserted in one to operate in a hole drilled in the other. Something more than mere mechanical skill was required to make the change, even if Johnson knew what suggestions Hall had made.

Johnson was not employed by Hall to carry out his inventions when the model, Exhibit C, was produced, but was an employé of the Interchangeable Tool Company, and hence, although Mr. Hall was the president of said company, he is no more entitled to claim Johnson's invention, even if he were employed to aid in perfecting the Hall nipper, than is any other officer of said company. In order that an employer may claim the benefit of improvements made by an employé, the employé must have been employed to assist in carrying out an invention conceived by the employer. (Agawaw Co. *v.* Jordon, cited above.) Whether the Interchangeable Tool Company is entitled to use this invention on an implied license because Johnson did not assert his right thereto while in its
212 employ is a question for consideration by another tribunal and not by me, as I am only called upon to decide from the testimony who invented it.

The record in this case is quite voluminous, and I have, therefore, only referred to such portions of the testimony as I consider pertinent to the issue. The testimony shows that Johnson produced the model embodying the invention claimed, and, as I do not find that the same was communicated to him by another he must be held to be the inventor thereof.

The decision of the examiners-in-chief is therefore overruled and priority of invention awarded to Johnson.

May 28, 1880.

E. M. MARBLE,
Commissioner.

Ex'd: E. McK., C. C. A.

213 [Endorsed:] 12422. D., '83. U. S. Patent Office. Comm'r's decision. Hall *v.* Johnson. May 28, '83. Recorded, vol. 24, p. 272.

214 *Testimony on Behalf of Thomas G. Hall.*

In the United States Patent Office.

MOSES C. JOHNSON *vs.* THOMAS G. HALL.

Interference. Cutting nippers.

Amos Broadnax, counsel for Hall, 10 Pine street, N. Y.

215 *Preliminary Statement of Thomas G. Hall.*

U. S. Circuit Court, East. Dist. of N. Y.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

COMPLAINANT'S EXHIBIT INTERFERENCE RECORD. H. E. T., Special Examiner.

In the United States Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

Interference. Cutting nippers.

Thomas G. Hall, of Milford, in the county of New Haven, in the State of Connecticut, being duly sworn, deposes and says that he is a party to the interference declared by the Commissioner of Patents about June 6th, 1881, between deponent's application for letters patent, filed April 27th, 1881, and the patent to Moses C. Johnson, granted October 5th, 1880, for cutting nippers.

That he conceived the invention set forth in the declaration of interference on or about January, 1879; that during the months of January, February, March, and April, 1879, he made drawings of said invention and explained the same to others.

That he caused a model of the same to be made during the month of May, 1879; that he embodied the same in a working tool, which was completed in the month of May, 1879; that the same was successfully operated during said month, and that he has since continued to use the same and has manufactured and sold such tool since the month of July, 1879.

THOMAS G. HALL.

MILFORD, COUNTY OF NEW HAVEN, *State of Connecticut,* } *ss:*

Subscribed and sworn to before me this 4th day of July, A. D. 1881.

[L. S.] JOHN W. FOWLER,
Notary Public.

12—186

216 *Amended Preliminary Statement of Thomas G. Hall.*

In the United States Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

Interference. Cutting nippers.

Thomas G. Hall, of Milford, county of New Haven, deposes and says that he has been for many years experimenting upon and endeavoring to improve the cutting nippers heretofore patented by him and now the subject of this interference.

That, from time to time, during the months of January, February, and March, 1879, he made several sketches or drawings of proposed alterations and improvements and submitted the same to and explained them to several members of the company manufacturing the same.

That the alterations and improvements (finally adopted in the month of April, 1879, according to the best of his knowledge and belief) were explained and illustrated to others from time to time during the months of January, February, and March, 1879; that the first model was made about May 15, 1879, according to the best of his knowledge and belief.

THOMAS G. HALL.

MILFORD, COUNTY OF NEW HAVEN, } *ss:*
State of Connecticut, }

Subscribed and sworn to before me this 14th day of July, A. D. 1881.

[L. S.] JOHN W. FOWLER,
Notary Public.

217 57 BROADWAY, NEW YORK, *August 4th*, 1881.

In the Matter of the Interference between the Application of THOMAS G. HALL for an Improvement in Cutting Plyers and the Patent No. 232,975, granted October 5th, 1880, to Moses C. Johnson, now pending before the Commissioner of Patents.

SIR: You are hereby notified that on Wednesday, August 10th, 1881, at my office, No. 57 Broadway, New York, at 10 o'clock in the forenoon, I shall proceed to take the testimony of Thomas. G. Hall, of Milford, Conn., and James F. Oliver, William Q. Judge, David L. Harris, and J. M. Adams, of Brooklyn, N. Y., and all of whom will testify to the priority of invention in this case by said Thomas G. Hall, as witnesses on my behalf. The examination will continue from day to day until completed. You are invited to attend and cross-examine.

New York, August 4, 1881.

THOMAS G. HALL,
By AMOS BROADNAX,
His Attorney.

To Theodore G. Ellis, Esq., Hartford, Conn., attorney for M. C. Johnson.

Due and timely service of a copy of the foregoing notice is hereby admitted.

THEO. G. ELLIS,
Attorney for Johnson.

218 In the United States Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

Interference. Cutting nippers.

NEW YORK, *August* 10, 1881.

Parties met pursuant to the foregoing notice.

Present: Wm. Q. Judge, Esq., of counsel for Thomas G. Hall, Esq., and Theo. G. Ellis, Esq., counsel for Johnson.

THOMAS G. HALL, a witness produced on behalf of himself, being duly sworn and interrogated by counsel, deposed as follows:

1 Q. What is your name, age, residence, and occupation?

A. Thomas G. Hall; age, 48 years; residence, Milford Conn.; occupation, president of the Interchangeable Tool Company and superintendent thereof.

2 Q. What business is the company engaged in?

A. Manufacturing Hall's patent nippers under a patent granted me November 5, 1878, which is an improvement on a patent granted me — 1867.

3 Q. Can you describe the nippers your company are now manufacturing?

A. We are now manufacturing a nipper on the two compound-lever principle, with a tooth and recess connecting the two handles, producing thereby a uniform motion of the jaws, also a recess in each jaw in which the spring is secured, differing in those two respects from the patent referred to above; otherwise similar to the drawing therein described.

219 4 Q. Is there no other difference?

A. Yes; there is a still further difference, which I neglected to mention in my last answer, and that is dispensing with a stop pin in the forward part of the plate and substituting therefor a screw in the handle.

5 Q. Please to state whether the drawing I now show you represents the nipper you now manufacture, or not.

A. It is a correct drawing of the nipper as now manufactured, with the exception of the stop screw in the handle, which does not appear in this drawing.

Counsel for Hall offers the drawing in evidence, and same is marked Hall Exhibit No. 1, W. H. B., August 10, 1881.

6 Q. Please state who made that drawing.

A. Mr. Moses C. Johnson. It was made by him about the month of March, 1880. I find I am mistaken as to the above date; it

should be about July, 1879. Mr. Johnson at that time was in the employ of the company as a draughtsman and model-maker, and made the drawing by my direction, and it corresponds with a model made after the drawing by him now in the possession of the company.

7 Q. Please state under what circumstances the drawing was made.

A. The drawing was made by Mr. Johnson in overtime at his house and not at the factory, for which he received compensation.

8 Q. When did the company of which you are president first begin the manufacture of nippers, and at what place? Describe also the kind of nippers upon which they began.

A. We began in August, 1878, in Harlem, New York. The nippers made at that time were limited in number, under the
220 patent granted to me November 5, 1878, No. 209,677.

9 Q. Describe the further progress of the nipper development—its improvement and manufacture by you or under your supervision.

A. We left Harlem about the 1st of January, 1879, and moved to Nos. 57 and 59 Hudson street, New York.

10 Q. Have you finished?

A. We there resumed the manufacture of the nipper with the changes as shown in the drawing. The first goods we sold with the changes was about the 1st of July, in the same year.

11 Q. What year was that?

A. 1879.

12 Q. When did you first conceive and experiment with a nipper made with a gear in the handle or with pins in the handle opposite the handle fulcra?

A. I experimented in the year 1877 with a pin in one handle and a hole in the other handle. That same experiment I explained to a Mr. Crane, who was foreman of our shop in Harlem. I afterwards explained the same thing to Mr. William Q. Judge and J. F. Oliver, at No. 71 Broadway, in March, 1879. At that time a drawing was made of the pin and recess by Mr. Judge at my request.

13 Q. Was that pin stationary or movable?

A. It was stationary.

14 Q. What was the occasion of the explanation made at 71 Broadway?

A. It was brought about by the remarks and objections made by a Mr. Curtis—whose first name I do not know—regarding the want of uniformity in the motion of the jaws. At that time Mr. Curtis produced a nipper known as the Kennedy nipper, which nippers had gearing connecting the two handles.

15 Q. Is this a drawing of it?

A. That is a drawing of it from the Patent Office.

221 Counsel for Hall offers the drawing in question in evidence, and same is marked Hall's Exhibit No. 2, Aug. 10, 1881, W. H. B.

16 Q. Please proceed with your explanation, if you have anything more to say.

A. After seeing the Kennedy nipper that Mr. Curtis had I explained the experiment I had made in 1877 about a pin and recess, and then, at my request, Mr. Judge made a sketch.

17 Q. What was done then?

A. It was then suggested that the experiment be tried at our factory, in Hudson street.

18 Q. What experiment do you refer to?

A. The tooth and recess or gearing.

19 Q. Which do you mean—tooth and recess or gearing?

Question objected to by counsel for Johnson as leading and as suggesting the answer required.

Counsel for Hall says he withdraws the question.

20 Q. What did you do then, Mr. Hall, about this, if anything, and give the date?

A. I think it was the first week in May, 1879, I had a conversation with Mr. Adams, who was superintendent of our factory at that time, in reference to the matter—that is, the inserting of pins between the two handles—and, at my suggestion, he took a nipper that I myself had made and inserted pins therein opposite the fulcra. We tested the nippers after we had made the change, and, it proving satisfactory, the company concluded to adopt it.

21 Q. Never mind, Mr. Hall, what the company concluded to do. Just state what you did and was done, to your knowledge.

A. That is about the history of it.

222 22 Q. When the experiment you have just described was found to be satisfactory what was the next step taken?

A. The next step was to make the model correspond with the change made in the tool.

23 Q. Who made the model?

A. Mr. Johnson—M. C. Johnson.

24 Q. Counsel for Hall hands witness an article made of iron and asks him what it is.

A. That is one of the handles of the nippers made by myself in which Mr. Adams inserted the pins.

25 Q. Please to describe in detail the course of the experiments upon that nippers and handles. I desire, by this question, to direct your attention, if possible, to every circumstance connected with the experiment.

A. Mr. Adams, in inserting the pins, put three of them in one handle and two in the other, making a species of gearing which was considered by myself unnecessary, and two of the pins were removed from the handle containing the three pins, leaving only one pin, which works in the two pins inserted in the opposite handle. From that experiment we dropped the pins and made corresponding protuberances on the handles, similar to the nipper now manufactured, and altered our dies and other tools to correspond with the change.

26 Q. What was Mr. Moses C. Johnson's employment at that time?

A. Model-maker and draughtsman.

27 Q. Did Mr. Johnson at that time or at any time thereafter up to February, 1880, make any claim to the invention of that improvement, to your knowledge?

A. Mr. Johnson never made any such claim to me personally at any time, nor did I hear of his having made any claim to the invention until Mr. Henry G. Thompson told me that he was an owner of a patent thereon. Mr. Thompson gave me that information about the latter part of August or the 1st of September, 1880, and
223 further told me that he had purchased the patent for the purpose of protecting the company.

Counsel for Hall offers in evidence the article of iron referred to in Q. No. 24, and same is marked Hall's Exhibit No. 3, August 10th, 1881, W. H. B.

28 Q. What have you to say in regard to the spring and the jaws?

A. The method of putting the spring in I used in the same model that the handle, Exhibit No. 3——

29 Q. Have you any of the parts?

A. I have two of the parts, and these are *they* now produced. I would say also that these two parts show evidence of another experiment I tried in having two holes drilled—one hole in each jaw, which was for the purpose of inserting a pin, which was to close the opening between the jaws, and also hold the spring in place. I afterwards discarded that pin and used the notch.

30 Q. What notch?

A. In the jaw, holding the spring.

31 Q. Please take one of those jaws and describe the notch to which you refer, and its location on the jaw.

A. It is in the extreme forward end, inside of the shaft of the jaw.

31½ Q. What part of Moses C. Johnson's specification does the notch, as you call it, correspond with?

A. Two parts seem to refer to it, but then there is another part here that seems to describe it more accurately. Lines 35, 36, and 37 and line 70 also refer to it.

32 Q. Please look at lines 50 and 51 and see whether they describe it.

Question objected to by counsel for Johnson as leading and
224 as a certain letter indicated has been named by counsel as indicating the part to which the witness is expected to testify.

A. I would say, in looking over the specification, that I find further reference to it, commencing at line 50 and extending to and including line 64.

Counsel for Hall offers in evidence two jaws of a nipper. The same are marked Hall's Exhibit No. 4, Aug. 10, 1881, W. H. B.

33 Q. What are those jaws the jaws of?

A. They are the jaws of a nipper made by me about the month of December, 1878; I will correct that statement; I think they were

made about the 1st of January the following year. I recall that from the fact that I made it while our shop was in Hudson street.

34 Q. How does that enable you to recall it?

A. Because I now remember that it was made after we left Harlem.

35 —. Is there any difference between the shape of those jaws and the jaws of the corresponding size nippers now manufactured?

A. There is a difference. These jaws were made from dies much smaller than we are now using. We had new dies made when we commenced to manufacture the nippers on the new model.

36 Q. Please describe the difference in shape.

A. The only material difference is the deficiency in metal. The difference in shape is indescribable.

37 Q. Did you describe or explain these improvements to any other persons than those you have mentioned; and, if so, to whom?

A. I described them to Mr. David L. Harris, Mr. J. W. Fowle, and Mr. Charles Oliver, all of whom were connected with the Interchangeable Tool Company.

225 38 Q. What kind of a spring did you use in that nippers?

A. The same shape we are using at the present time, a V-shaped spring. When this nipper was originally made, the parts of which are in evidence, the spring was fastened in a brass block screwed into the plate, but when I made the changes spoken of in the jaws I dispensed with the block and put the spring in loose. These are the plates referred to.

Counsel for Hall offers the plates referred to in evidence, and same are marked Hall's Exhibit No. 5, Aug. 10, 1881, W. H. B.

39 Q. Referring solely to the spring used in connection with the block, I ask you to describe its shape and construction accurately without any reference to the block.

A. It is a simple V-shaped spring—a piece of steel bent in the shape of a V.

40 Q. Was Mr. Moses C. Johnson in your employ or that of your company at the time the V-shaped spring was adopted?

A. No; he was not.

41 Q. When was he employed by the company first?

A. I think in the latter part of April, 1879.

42 Q. Will your pay-roll show it; and, if so, will you produce it?

A. The pay-roll will show it, and I presume it can be produced.

43 Q. Who of the two, J. M. Adams or Moses C. Johnson, was first employed?

A. Mr. Adams.

44 Q. To which of them and in what place did you first show this improvement in the handles?

A. I showed it to Mr. Adams first, at No. 71 Broadway; that is my recollection of it, but no instructions were given him at that
226 time to proceed with the work. He happened in the office one afternoon and Mr. Judge asked his opinion of the improvement and asked whether he thought it would answer the purpose. Mr. Adams said at the time that he couldn't tell until he

tried it. Mr. Judge and J. F. Oliver were present at that interview, to the best of my recollection; I think that was some time during May, 1879.

45 Q. Why do you say "he happened in the office?"

A. Because I do not recollect that he came there by appointment.

46 Q. Was he not in your employ?

A. He was.

47 Q. What office do you refer to?

A. To William Q. Judge's office? That office had previously been the office of the Interchangeable Tool Company.

48 Q. Do you recollect a conversation at 59 Hudson street, New York, at the company's office, between Mr. J. M. Adams, yourself, and W. Q. Judge in relation to this improvement in the handles of the nippers? If so, state the conversation and its date.

A. I recollect a conversation during the early part of May, about the time the pins in the handles had been tried, after Mr. Adams had signified his approval of the improvement. He notified me that it would be necessary to have new sets of forging dies made, which would involve an expense of some seven or eight hundred dollars. I told him at the time that I would lay the matter before the board of directors, and if they approved we would go on and change the dies; that was the substance of the conversation I had with him.

49 Q. Do you remember whether at that conversation any sketches or explanations of the improvements were made or gone into by any of the parties?

A. My recollection is that Mr. Johnson had made, under
227 Mr. Adams' direction, templates of the nippers with the improvements. We had several conversations, and I don't know which one the counsel refers to. I had previously shown Mr. Adams sketches, at 71 Broadway, of the improvements I have been referring to.

50 Q. What was the object stated by you of the improvement in the handles?

A. To overcome the objection made to the tool as to the want of uniformity in the motion of the jaws.

Counsel for Johnson, as a matter of form, hereby objects to so much of the foregoing testimony as might be construed to relate to facts and dates prior to those given in Hall's preliminary statement.

Cross-examination by counsel for Johnson:

51 X Q. Mr. Hall, you state that you are president and superintendent of the Interchangeable Tool Company. Please state how long you have been president and for what time you have been superintendent, giving the exact dates, as near as you can.

A. I have been president of the company since its organization, in August, 1878. I was superintendent during that time, with the exception of an interval dating from May, 1879, to about February, 1880.

52 X Q. Who was superintendent of the company during the interval you mention?

A. Mr. James M. Adams.

53 X Q. Did you, as president of the company, act as manager of the mechanical work?

A. No, sir.

54 X Q. Who had charge of the mechanical work during the time you have been president?

228 A. Mr. Adams had charge while he was superintendent, and when he was not superintendent the different foremen had charge.

55 X Q. Do you consider yourself good at remembering dates generally?

A. Moderately so; am liable to mistakes.

56 X Q. You state in your second answer that you manufactured nippers under your two patents of November 5, 1878, and a patent granted 1867. Do you not also embrace in the nippers manufactured by your company the patent of Johnson of October 5, 1880?

A. I believe we use the same thing claimed by Mr. Johnson, and might say we used it before Johnson obtained his patent.

57 X Q. In your sixth answer you state that the drawing, Exhibit No. 1, was made by Mr. Johnson by your direction. Please to explain what direction you gave him.

A. The way the matter occurred was this: Mr. Adams told me that we had no facilities for draughting in our factory and suggested the idea of Mr. Johnson doing it at his own house overtime.

58 X Q. Is that all the direction you gave him about it?

A. I told him to go to work and have it done, and that we would pay Mr. Johnson for his extra time.

59 X Q. Are you sure that this is the drawing made by Johnson at the time you refer to?

A. As sure as I can be of anything I did not actually see done.

60 X Q. Did you see Mr. Johnson make a drawing anything similar to this about a year later than the date you have given for the execution for Exhibit No. 1?

A. I think not.

61 X Q. You have stated in your seventh answer that Mr. Johnson received extra compensation for making this drawing at his house. How do you know that he did?

229 A. I know it because we had arranged to pay him extra for the work, and the secretary afterwards informed me that he had been paid.

62 X Q. Do you know that he received any extra compensation, of your own knowledge?

A. Nothing further than what I speak of. I was not in the habit of paying the hands.

63 X Q. Was the drawing you refer to, Exhibit No. 1, made before or after a completed model?

A. Made before.

64 X Q. In your 12th answer you say you explained a certain

invention of yours, with a pin in one handle and a hole in the other to a Mr. Crane. About what was the date?

A. It was in the latter part of 1878.

65 X Q. You also say you explained the same thing to William Q. Judge and J. F. Oliver. What was the date of that explanation?

A. About April, 1879.

66 X Q. After making this invention how long was it before you made the improvement of putting three teeth in one part of the handle and two in the other?

A. That was done in May following, 1879.

67 X Q. Whose invention was this of putting three teeth in one handle and two in the other?

A. I don't know as that could be called an invention. When I found that Mr. Adams had made this connection he had put in three teeth in one handle and two in the other, which was different from the sketch I had shown him.

68 X Q. Where is that sketch?

A. My impression is that it is in the possession of Mr. Judge.

Counsel for Johnson asks to have the sketch produced.

Mr. Judge says he has not got it.

69 X Q. How do you account for Mr. Adams making the model, Exhibit No. 3, different from your instructions?

230 A. I don't account for it at all.

70 X Q. Will you please examine Exhibit No. 3 and tell which pins appear to have been removed?

A. The two pins directly opposite the hole in the handle and which have been filed off.

71 X Q. The one remaining is one of the end ones?

A. Yes.

72 X Q. In placing the tool together that is not the pin that would come between the two pins on the other handle, is it?

A. It is the pin that would come between the other two pins on the other handle, or, in other words, it is the male pin.

73 X Q. With what relation to the two pins on the other handle would the next or middle pin of Exhibit No. 3 come?

Counsel for Hall objects to the question on the ground that there is no middle pins on the handle to which the question can apply.

Counsel for Johnson wishes to show by this examination that there are two marks of pins and one whole pin on Exhibit 3, and that interlocking two pins with three pins the middle one of the three would be the only single pin that would lock both ways with the two pins, and that consequently if the pins had been removed intentionally it would be the middle pin that would be left, as either of the end pins would be inoperative by itself.

A. Wouldn't come to any relation at all.

74 X Q. Where would the third or other end pin come with relation to the other two pins on the other handle when the two handles were put together?

231 A. Witness gives the same answer as to the foregoing question, and also that they were filed off because they were in the way and superfluous.

75 X Q. Do you know where the other handle corresponding to Exhibit 3 now is?

A. I think I do. I will explain my reasons for thinking so, if you wish it, Some months ago I found the other handle, — for safe keeping, not knowing I had this one. Recently I found this handle in the scrap box. I will endeavor to produce the other handle.

76 X Q. In your 16th answer you speak of a sketch made by Mr. Judge. Is that sketch in existence?

A. My impression, as I have stated before, was that Mr. Judge had it.

77 X Q. Was there anything shown on that sketch that was the improvement or invention of Mr. Judge?

A. No, sir.

78 X Q. Was this Exhibit 3 the first model that you know of embracing the principle of interlocking handles in combination with the other parts of the nippers, as claimed in this interference?

A. I will have to answer the question in two ways. I had tried the interlocking of the handles as far back as the first day of January, 1877, New Year's Day, by drilling a hole in one handle and putting a pin in the other. The other change in reference to the spring was done about April, 1879, or May; I will not be positive as to the exact date; it won't vary more than a week.

79 X Q. After trying the experiments you have mentioned in your direct examination, with interlocking handles, did you make or order to be made any other models of complete nippers as working patterns with or without the interlocking feature?

A. I did.

80 X Q. Please state what they are.

A. We made two models with the changes—with the improvements.

232 81 X Q. Did you make any without the interlocking handle?

A. No.

Adjourned to August 11th, 1881, at 9 o'clock a. m.

NEW YORK, *August 11th*, 1881.

Parties met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of Mr. HALL continued by Mr. ELLIS:

82 X Q. Who removed the two pins from Exhibit No. 3?

A. My impression is that Mr. Adams did.

83 X Q. Have you found and can you produce the other handle corresponding to Exhibit No. 3?

A. I have found it, and now produce it.

Handle offered in evidence and marked Hall's Exhibit No. 3 X, August 11th, 1881, W. H. B.

84 X Q. What is the condition of the teeth on the handle you have just produced?

A. It has one perfect tooth or prong, and one has been broken off.

85 X Q. Will you please place these two handles together so that the remaining tooth on Exhibit 3 will come between the tooth and the place where one is broken off on Exhibit 3 X, and say if that is the position that the teeth would be in relation to each other in the nippers?

A. Witness does so, and says it is.

86 X Q. Are you sure that statement is correct?

A. I am quite sure.

233 87 X Q. In your answer to Q. 26 you say that Moses C. Johnson was model-maker and draughtsman. Are you sure that was his position and employment?

A. I am.

88 X Q. Will you please refer to Exhibit 4 and say who actually made those parts?

A. The forgings were made at the Colt Arms Company and were finished up by myself.

89 X Q. What was the date of your finishing them up, and where did you do the work?

A. It was in the early part or middle of January, 1879, at No. 57 Hudson street, New York.

90 X Q. Will you please examine Exhibit 5 and state when and where and by whom those plates were actually made?

A. (Witness examines the plates and says as follows:) With the exception of the punching out by a punch and die, they were done at the same place, about the same time, by myself.

91 X Q. Are they not exactly similar to all the plates made for your company's nippers before your invention of the improvement in controversy?

A. They are not.

92 X Q. What is the difference?

A. They are considerably narrower. I might add that the company never made any of these large nippers from the plates so punched out. The plate blanks were afterwards all sold for scrap steel.

93 X Q. What was the hole in the middle of the plate made for?

A. For the purpose of screwing in the brass block which originally held the spring.

94 X Q. Is that brass block shown in your present application for a patent now in interference?

A. It is not.

95 X Q. Did Exhibits 3, 4, and 5 all originally belong to the same pair of nippers?

A. It is my belief that they did.

96 X Q. Were there not other parts of nippers in the scrap heap where you found these parts?

234 A. There were some parts of the small nippers, but none of the large except them. I will add further to my answer that about a year ago I found this handle, 3 X, and put it away for

safe keeping; the other parts were missing; and finally found them about two months ago in the scrap box.

97 X Q. How do you suppose they came to be thrown in the scrap box?

A. It looks to me as if it had been done intentionally by some parties.

98 X Q. Were either of the improvements shown in the exhibits ever adopted by your company in the manufacture of nippers?

A. They were.

99 X Q. State the exact date as near as you can.

A. I think some time during May, 1879.

100 X Q. You say in answer to Q. 35, "We had new dies made when the company commenced to manufacture the nippers on the new model." When, where, and by whom were those new dies made?

A. They were made by the Colt Arms Company some time about the latter part of May or 1st June, 1879, at Hartford, Conn.

101 X Q. Up to what date did you go on making nippers which did not embody the improvements now in controversy?

A. We made a few dozen—say six dozen—prior to the 1st of January, 1879, in Harlem. After the 1st of January, 1879, and up to the month of March, 1879, we made about the same number at 57 Hudson street, New York. That was all we manufactured of the old style.

102 X Q. About what date was the V spring adopted in the manufacture of your nippers?

A. About August, 1878. I may add that we never used anything but the V spring.

103 X Q. (Question and answer No. 49 read to witness.) Now do you make the statement that Mr. Johnson had made under Mr. Adams' direction templates of the nippers with the improve-
235 ments, of your knowledge?

A. I know that I saw Mr. Johnson making the templates, and that Mr. Adams told me that they were being made under his direction.

104 X Q. State, if you know, what the sketches were that you showed Mr. Adams, referred to in your answer No. 49, and where they are now.

A. It was a sketch drawn from what I have alluded to as having experimented with in the month of January, 1877. To the best of my recollection the sketch was left with Mr. Judge; I have never seen it since.

105 X Q. Who made that sketch?

A. Mr. Wm. Q. Judge.

106 X Q. Is this the same sketch that has been previously referred to as the sketch made by Mr. Judge after your conversation at No. 71 Broadway?

A. The same.

107 X Q. How is it that the wording of your claim in the application now in controversey is substantially identical with the claim of the patent to Johnson, of October 5, 1880?

A. Because Mr. F. A. Prescott was my attorney at the time, and

he told me that it must be similar to Mr. Johnson's application, and said it was necessary to have it so. I raised the question with him at the time.

108 X Q. Then your attorney made your invention for you, did he not?

A. Hardly; no, sir.

109 X Q. Was your application intended to be substantially a copy of Johnson's patent?

A. It was not.

110 X Q. What was intended to be the difference?

A. It was intended to embody simply what I claimed. I had never seen Mr. Johnson's specification.

111 X Q. Did not Johnson's patent suggest to you in any way the propriety of making an application for the same invention?

236 A. The propriety of making an application for a patent for those improvements was discussed by the board of directors of the Interchangeable Tool Company as early as May, 1879. I suggested at the time of such discussion my doubts as to whether a patent could be obtained thereon; however, I afterwards applied for a patenta, bout the 1st of February, 1880. I applied for a patent for my invention in France, with the improvements, and obtained a patent therefor about the 12th of April.

Witness produces a copy of the French patent and offers the same in evidence.

Counsel for Johnson asks to have the whole patent with the specification put in evidence.

Counsel for Johnson also asks counsel for Hall to produce copies or the original of the votes of the board of directors of the Interchangeable Tool Company relating to the application for the United States and French patents referred to by the witness.

112 X Q. When you made your application for the French patent did you not suppose that you were making application for the improvements described and shown in your patent of November 5, 1878?

Counsel for Hall objects to the question, as suppositions are not evidence, and that the application for the French patent will show what the petitioner was applying for and what he meant to cover.

Counsel for Johnson intends to show by this witness, who has referred voluntarily to his French patent, that he presumed

237 he was making an application for one thing while others connected with the company substituted another.

A. No; on the contrary, I gave my attorneys a nippers, with the improvements, to make a drawing from.

Cross-examination of Mr. Hall suspended to take up the examination of Mr. J. F. Oliver.

Cross-examination of Mr. HALL resumed:

113 X Q. What was the reason that you took the wording of Mr.

Johnson's patent for your United States application instead of the wording which you sent for your French patent?

A. I did not take in consideration the French patent at the time at all. I was governed entirely by what F. A. Prescott told me was necessary to be done.

114 X Q. What was the reason that you did not apply for your United States patent at the time you applied for your French patent?

A. For the reason that I did not think it necessary.

115 X Q. Why was it not as necessary in the United States as in France?

A. As I had taken no patent out in France, I considered it advisable to apply for a patent with all the improvements while I was about it.

Examination of Hall adjourned, according to stipulation of parties dated this day; to be continued by notice.

August 11, 1881.

W. H. B.

238 NEW YORK, *October* 12, 1881.

Met pursuant to adjournment.

Present: Counsel as before.

Redirect examination of THOMAS G. HALL by AMOS BROADNAX, Esq.:

116 Q. Referring now to Exhibits No. 3 and 3 X, please to state whether or not they were the first practical steps taken by you at the works of the Interchangeable Tool Company to carry out in a practical manner the invention of joining the two handles with a cog joint.

Question objected to, as the question assumes that these steps were taken by witness, whereas it has been testified by this witness that these handles were made by another party; to which counsel for Mr. Hall adds that the testimony shows that this work was done under the direction of Mr. Hall.

A. It was the first step.

117 Q. This was done, as I understand you, by Mr. Adams under your direction?

A. It was.

118 Q. Now, please to fix the date, as near as you can, when that was done.

A. It was about the fore part of May, 1879.

119 Q. Please to state what the next step was taken by you in behalf of the tool company to practically apply this invention.

A. The next step taken in the matter was the making of brass templates to show the working of the connection.

120 Q. Were those templates to which you refer made substan-

tially of the form of the nipper handle, and having the cog
239 in the one template and the recess in the other, and substantially as shown by M in Fig. 2 of the drawing making part of the patent granted to Moses C. Johnson Oct. 5, 1880, and numbered 232,975, a copy of the specification and drawing of which I now hand you?

Question is objected to as leading.

A. It is precisely the same thing.

121 Q. Please state who made those templates.

A. Mr. Moses C. Johnson, to whom the patent referred to in your last question was granted.

A copy of the specification and drawing of the patent granted to Moses C. Johnson Oct. 5, 1880, No. 232,975, is offered in evidence and marked Hall's Exhibit 12, October 12, 1881, J. E. B., notary public.

122 Q. Please state, as near as you can, when it was that those templates were made.

A. It was in the fore part of May, 1879, immediately after the experiment of inventing the pins in the handle.

123 Q. As I understand you, both Mr. Adams and Mr. Johnson were in the employ of the company at that time and were both working under your direction.

A. They were both in the employ of the company at that time. The business of the company was all under my supervision.

124 Q. Were they at that time in the pay of the company and was the work done in the company's time?

A. They were in the pay of the company and the work was all done in the company's time.

125 Q. After these templates were made what was done next towards the making of a practical nipper?

A. The next step, to the best of my recollection, was the
240 alteration of a model, previously made by Jenks & Co., so as to correspond with the templates which had been made, showing the connection of the handles.

126 Q. That model that was made at the works of Jenks & Co.; please to state who it was that made that model, and who it was the model was made for.

A. The model was made for the Interchangeable Tool Company, of which I was president. Mr. Moses C. Johnson made it, or the greater part of it. I think Mr. Jenks said he had to call other men in to work on it also, as there was great delay in having the work done; saw Mr. Johnson working on it myself.

127 Q. When was that model made?

A. I think about January, 1879.

128 Q. Please to state if that model was like the model Hall's Exhibit No. 8.

A. It was similar to this, with the exception of the pin across the throat.

129 Q. Recurring now to the templates, please to state whether,

after the templates were made and before the nipper was altered to put the cog connection between the handles, was there a drawing made of the nipper showing it in its completed form.

A. I think there was.

130 Q. Who made that drawing?

A. Mr. M. C. Johnson.

131 Q. Was it made at the works of the company?

A. It was not.

132 Q. Where was it made?

A. I understood it was made at Mr. Johnson's house.

133 Q. Did Mr. Johnson make it for the company?

A. He did.

134 Q. Did the company pay him for making it?

A. To the best of my knowledge and belief the company paid him.

241 135 Q. Did he make the drawing *as* overtime for the company?

A. I so understood it.

136 Q. Who directed him to make the drawing?

A. I think Mr. Adams told him to do so directly.

137 Q. Did you authorize Mr. Adams to have it done?

A. I had a conversation with Mr. Adams in reference to Mr. Johnson making the drawing. He (Mr. Adams) remarked that we had no facilities for drafting at the factory, and suggested that Mr. Johnson would do the work overtime if we paid him for it. I told him to have it done.

138 Q. Was that the first drawing that Mr. Johnson made of the nipper with the cog connection?

A. The first of which I have any knowledge or recollection.

139 Q. Where is that drawing?

A. It disappeared mysteriously out of the shop of the company, with the templates and model and all connected with it.

140 Q. When did you last see the drawing?

A. I don't think I have seen it since January, 1880, though it was considerably later than that when I looked for it.

141 Q. Where was the shop then?

A. At 57 and 59 Hudson street.

142 Q. When was that drawing made?

A. That was made in the fore part of May, 1879.

143 Q. What size of nipper did that drawing represent?

A. The 5 in., or No. 2.

144 Q. Did that drawing represent a larger nipper than this drawing, Exhibit No. 1?

A. It did. Exhibit No. 1 is for the No. 1 nipper, not yet manufactured, excepting the model made after that drawing, now in possession of the company.

145 Q. This drawing to which we have been referring as the first drawing which Mr. Johnson made of the nipper—was the

242 nipper that Mr. Johnson altered made after that drawing—I mean was it made like that drawing?

A. It was.

146 Q. How long was it after the drawing was made before the nipper was altered to correspond with the drawing?

A. I think about a week.

147 Q. And the work, as I understand you, of altering the nippers was done by Mr. Johnson in the pay of the company?

A. It was.

148 Q. Where is that nipper?

A. As I have stated before, it has disappeared mysteriously. I don't know where it is.

149 Q. Please to state where you last saw that nipper, as near as you can recollect.

A. It was somewhere about January, 1880; just prior to the removal of the company's factory to Milford.

150 Q. Did the company manufacture any nippers after that model? And, if so, state as near as you can how many.

A. Between 40,000 and 50,000.

151 Q. Please to state if that nipper embraced and included all of the parts and combination of parts illustrated in the drawing and described in the specification of the patent granted to Moses C. Johnson October 5, 1880, marked Hall's Exhibit 12.

A. It was the same thing precisely.

152 Q. And it was that nipper, as I understand you, for which you applied for a patent in France, and for which a patent was granted you in France, as shown by Exhibit No. 11 in this case?

A. The same; the drawing was made from one of the nippers so manufactured.

153 Q. In your previous examination you referred to a patent as having been granted to you for an improvement in nippers in 1867. Please to state how many nippers you manufactured under that patent, if any.

243 A. I think 40,000 or 50,000.

154 Q. How long did you continue to manufacture nippers under that patent?

A. Several years.

155 Q. When did you discontinue?

A. I think the last I did in regard to that nipper was in 1874 or 1875.

156 Q. Please to give the number and date of that patent.

A. I do not recollect of my own memory, but referring to the Patent Report it is number 64664, and dated May 14, 1867.

Counsel for Hall gives notice to counsel for Johnson that upon the hearing of this interference he will use this patent in evidence as a record of the Patent Office.

157 Q. In your previous examination you stated that in the year 1877 you had made an experiment of joining the two handles of a nipper together, which experiment you say consisted of a pin in one handle and a hole in the other, the pin to work in the hole. Please state whereabouts the pin and the hole were placed in that experiment in the handle.

Question objected to by counsel for Johnson, as it refers to matters previous to the sworn date of the conception of Hall's invention in his preliminary statement.

A. It was in the inside of the handle opposite the hole, for the screws or fulcrums of the lever or handles.

158 Q. What time was it in 1877 that you made that experiment?

Same objection.

A. It was the first day of January, 1877.

244 159 Q. Whereabouts were you when you made that experiment?

Same objection.

A. At my own house and residence.

160 Q. What kind of nippers did you have on which you made the experiment?

Same objection.

A. A pair similar in construction to Hall's Exhibit 8, leaving out the centre hole and the pin between the jaws.

161 Q. At the time of that experiment were you manufacturing nippers similar to Hall's Exhibit 8?

Same objection.

A. I was not; I was not in the nipper business at that time.

162 Q. How did you come to have a nipper of that construction substantially to make the experiment with?

Same objection.

A. I made wooden patterns, from which I had brass castings made, of which I made the nipper.

163 Q. Did you make the nipper yourself?

Same objection.

A. I did.

164 Q. What tools did you have at the house for making the experiment with?

Same objection.

A. I am a piano forte maker by trade; I did the work with tools employed in that profession—a vice, a file, and a drill stop.

245 165 Q. Was it that experiment that you explained to Mr. Robert W. Crane in Harlem, at the shop of the company, in the fall of 1878?

Same objection.

A. It was.

166 Q. And about which Mr. Crane testified yesterday and tried to make a sketch of?

Same objection.

A. The same experiment.

167 Q. And was it this same experiment that you afterwards told Mr. Wm. Q. Judge of?

Same objection.

A. The same one.

168 Q. Now, in making your preliminary statement in this case, why did you not set up the facts of this experiment and the fact of your communicating it to these other gentlemen, as you have testified and as they have so testified?

Same objection.

A. Because Mr. F. A. Prescott, who was my attorney at the time and who was familiar with all the facts as to the previous experiment, told me that he did not want to go back of January, 1879.

169 Q. Did you give Mr. Prescott the facts about your experiment in 1877 and the fact of your communicating it to others at or before the time he prepared your preliminary statement in this case?

Same objection.

A. Mr. Prescott was aware of those facts as early, I think, as March, 1879. He therefore knew them before he prepared the papers.

246 170 Q. How did Mr. Prescott come to be familiar with the facts as stated?

Same objection.

A. I was quite intimate with him about that time; met him quite frequently, and he was a guest at my house on a number of occasions, where I had conversations with him.

171 Q. Who is Mr. Prescott? Where did you make his acquaintance? Through whom?

Same objection.

A. He resides at Washington, or did at that time. I was introduced to him by Mr. William Q. Judge in the latter part of 1878; understood he was an attorney.

172 Q. Who retained him as solicitor in this case to apply for the patent?

Same objection.

A. He was retained originally by Mr. A. Gustam, who had previously been secretary of the Interchangeable Tool Company.

173 Q. Was Mr. Prescott a friend of Mr. Gustam also?

Same objection.

A. He was.

174 Q. Did Mr. Prescott prepare and file the preliminary statement for you in the matter of this interference?

Same objection.

A. He did.

175 Q. And did he also prepare and file the application in interference here?

Same objection.

247 A. He did.

176 Q. At the time that he prepared the preliminary statement in this interference did he read it to you before you swore to it or did you read it yourself?

Same objection.

A. I think he read it for me.

177 Q. Did he call your attention especially to the dates given in the statement of the conception of the invention and its perfection?

Same objection.

A. My recollection is that at the time we talked over the whole subject, including a reference to the experiment of 1877, he at that time told me that it was unnecessary to go back of the 1st of January, 1879; he said that would cover the whole case.

178 Q. Up to the time that I appeared as counsel in this case and superseded Mr. Prescott how much money had you or your company paid him for his services in filing this application for the patent and in this interference?

Same objection.

A. As near as I can recall now, he has received something like six hundred dollars.

179 Q. During the time he was attorney in this matter did he frequently apply to you or your company for money?

Same objection.

A. He did.

180 Q. Please to look at the letter I now hand you and state whether it is in the handwriting of Mr. Prescott and is addressed to you.

Same objection.

248 A. It is in Mr. Prescott's handwriting; was addressed to and received by me.

181 Q. Was this letter an application to you by Mr. Prescott for money to be used in obtaining this interference?

Same objection.

A. It was.

Letter offered in evidence and marked Hall's Exhibit No. 13, Oct. 12, 1881, J. E. B., notary public.

182 Q. State, if you please, whether or not, previous to Mr. Prescott being employed by you to apply for this patent in interference, you employed any one else or directed any one else to be employed to make an application for a patent for this same invention.

Same objection.

A. Mr. William Q. Judge, under my direction, employed Mr. Amos Broadnax as my attorney to apply for a patent on the nippers as improved.

183 Q. State whether or not Mr. Broadnax prepared an application and sent it to you for execution.

Same objection.

A. He did.

184 Q. And did you execute it?

Same objection.

A. To the best of my recollection, I did.

185 Q. Please to look at the paper I now hand you and state if you recognize it as the specification which Mr. Broadnax prepared
249 and which you executed.

Same objection.

A. I do recognize it as such, executed by myself.

Paper offered in evidence and marked Hall's Exhibit No. 14, Oct. 12, 1881, J. E. B., notary public.

186 Q. Please to look at the drawing I now hand you and state, if you please, whether it includes and embraces the several parts or combination of parts of the invention in controversy in this interference.

Same objection.

A. It does.

Drawing offered in evidence and marked Hall's Exhibit No. 15, Oct. 12, 1881, J. E. B., notary public.

Counsel for Johnson calls the attention of the Patent Office to the attempt to prove the date of the conception of the invention of Thomas G. Hall to have been earlier than the date stated in his preliminary statement, and makes formal objection to so much of the testimony of this witness as would appear to relate to the conception of the invention of any part of the matter in controversy antecedent to the date given by Hall in his preliminary statement.

187 Q. State, if you please, how long Mr. Moses C. Johnson continued in the employ of your company.

250 A. About a year; from about May 1, 1879, until May 1, 1880.

188 Q. During that time how many nippers did you manufacture?

A. About 25,000 to 30,000.

189 Q. Were those nippers like that shown and described in the patent to Moses C. Johnson, Hall's Exhibit 12?

A. They were.

190 Q. Did Mr. Johnson during that time or at any time make any claim to the invention described, illustrated, or claimed in that patent of his?

A. He never did, to my personal knowledge.

191 Q. Did he make any objection to the company manufacturing the nippers that you ever heard of?

A. He never did.

Cross-examination of witness by T. G. ELLIS, Esq., counsel for Mr. Johnson:

192 X Q. In your direct examination you speak of a wooden pattern and brass castings that you made in 1877. Where are they now?

A. I do not know.

193 X Q. When did you last see them?

A. Two and a half or three years ago, I think.

194 X Q. Did they disappear mysteriously?

A. No.

195 X Q. What became of them?

A. They have probably been lost or mislaid.

196 X Q. Have you searched in the scrap box at the Interchangeable Tool Co.'s shop for them?

A. No; they were never in the possession of the Interchangeable Tool Co.

197 X Q. In your direct examination you refer to a drawing made by Johnson, a brass template made by Johnson, and a model that disappeared mysteriously. Have you searched in the company's scrap box for them?

251 A. I have not.

198 X Q. In your direct testimony you have stated that Exhibits 3 and 5 were found in the company's scrap box. Why did you search for these things there and not for the others mentioned?

A. I did not search for them at all; I found them accidentally.

199 X Q. Had they, too, mysteriously disappeared?

A. I thought it was somewhat mysterious after I found them.

200 X Q. In your answer to Q. 148 you commenced to say something about Mr. Thomas H. Thompson and was stopped by counsel. Who is he?

A. He is a gentleman residing in Hartford, Conn. He succeeded Mr. M. C. Johnson as foreman at the factory.

201 X Q. When you made your preliminary statement in this interference did you see or hear read the first paper that you swore to before signing and swearing to the same?

A. I think I either heard it read or read it myself.

202 X Q. Are you not sure about this point?

A. Not positive—that is, am not positive whether I read it or heard it read.

203 X Q. With regard to the additional preliminary statement that you made, did you hear that read or see the same before signing and swearing to it?

A. I give the same answer as before. I frequently sign papers read to me, especially at night, on account of my eyes.

204 X Q. Then were you not aware that when you swore the first

September, 1881, at nine o'clock in the forenoon of that day, at my office, No. 57 Broadway, New York. Of this please take notice.

Yours very truly, AMOS BROADNAX.

Dated Sept. 1st, 1881.

Theodore G. Ellis, Esq., Hartford, Conn.

SEPTEMBER 5, 1881.

Due and timely service of a copy of the foregoing notice is hereby admitted.

THEO. G. ELLIS,
Att'y for Johnson.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

256 In the United States Patent Office.

Interference. Cutting Nippers.

NEW YORK, *September* 5, 1881.

Parties met pursuant to notice hereunto annexed.

Present: Amos Broadnax, Esq., of counsel for Hall, and Theo. G. Ellis, Esq., counsel for Johnson.

Mr. WILLIAM Q. JUDGE, a witness produced on behalf of Hall, being duly sworn, deposes as follows:

1 Q. Please state your name, age, residence, and occupation.

A. Name, William Q. Judge; age, 30 years; residence, Brooklyn, N. Y.; occupation, lawyer.

2 Q. I place in your hands a letter from the Patent Office, dated June the 4th, 1881, signed by the Commissioner of Patents, being the declaration of interference and statement of the subject-matter of the interference between the patent granted to M. C. Johnson October 5, 1880, and numbered 232,975, for an improvement in cutting plyers, and the application of Thomas G. Hall, No. 31902, for a patent for the same invention, filed April 27, 1881. Please state whether you are acquainted with the parties to said interference, and please to relate such knowledge as you may have of the invention in controversy, giving the dates when you first came in possession of such knowledge.

A. I am well acquainted with both of the parties, Johnson and Hall. I made Mr. Hall's acquaintance in the early part of
257 the year 1878. I made Mr. Johnson's acquaintance in the early part, I think, of the year 1879. I was employed by Mr. Hall and his friends, not including Mr. Moses C. Johnson, to incorporate a company under the laws of the State of New York, soon after I made his acquaintance, for the manufacture of cutting nippers, of which I then saw a sample. I had heard of Mr. Thomas G. Hall's invention of cutting nippers or plyers for a long time previous to making his acquaintance from his brother-in-law, and immediately after making his acquaintance he handed me the specifi-

cation and drawing, which I now produce, and told me it was his early invention of cutting nippers, upon which the sample, which he then also showed me, was an improvement.

The nipper which the company I have spoken of was to manufacture had not at that time been patented, but application was about to be made for a patent. It was a nipper having two handles, which operated two jaws between two plates, which plates held the jaws and handles together. The jaws were thrown apart by a V-shaped spring. While the application for a patent was pending the company was organized and Mr. —— assigned to it his invention and all improvements he might thereafter make. Mr. Hall and his friends were constantly, almost every day, in consultation with me not only about legal matters, but also in my presence were constantly talking about the invention—about Mr. Hall's manufacture of the old invention of 1867 and other matters connected with the business. The company was organized August, 1878, under the name of the Interchangeable Tool Company. A man named Crane, who was employed in the navy yard, Brooklyn, machine shops, was hired in June or July, 1878, to my personal knowledge, to make models of the nippers. He made one or two—one large-sized one I remember distinctly.

Shortly after that, in the summer of 1878, a shop was hired in Brooklyn, near Broadway and Lafayette avenue, where this
258 Mr. Crane went on with the making of tools, models, etc., for this nipper, and Mr. Hall was there making experiments. The Crane I refer to is named Robert W. Crane. It was well understood between Mr. Hall and the members of the company that the nipper was not perfect, and therefore those experiments. The imperfection was the failure of the jaws to move together at a uniform rate. Very soon after that, I think before October, 1878, the company hired a shop in Harlem, two or three streets from the river, near Second avenue, to which they removed and where Mr. Hall and Mr. Crane continued to work on the nippers. Experiments were then made by Mr. Hall, to my personal knowledge, for the purpose of perfecting the jaw motion and the mode of retaining the V-shaped spring. I positively swear that V-shaped springs were made in that shop and used in that nipper, at first alone and afterwards in connection with a brass tit, and after that again alone, for I was often in that shop, and four or five times for amusement have made several of those V-shaped springs, excepting the tempering with the tools and wire there for that purpose.

Between the date of the hiring of the Brooklyn shop and the removal from Harlem to Hudson street Mr. Hall, Mr. Oliver, Mr. David L. Harris, and Mr. A. Gustam, both singly and in company with each other and at many different times, were in my office, No. 71 Broadway, New York, where they discussed with Mr. Hall the subject of the improvement of the nippers in relation to the motion of the jaws and the retaining of the spring. On one occasion, in the winter of 1878—stop; I am mistaken; it was in the fall of 1878 and before the removal of the company from Harlem—Mr. Hall, myself, and a stranger, whose name I have forgotten, but who

compensation, saying that to him was due the cog arrangement in the handle. The improvements shown in Exhibits 3, 4, and 5 were adopted with the modification that it was decided to have the Colt Arms Company alter the handle dies so that there should be a projection of metal on the handles from which cogs could be made instead of wire teeth or cogs.

When this change was decided upon—which was shortly after J. M. Adams' employment by the company—Mr. Johnson was given the work of making the necessary drawings and models to carry out the improvements, among which were a lip on the jaw to hold the spring and a stop pin or screw in the handle to arrest the motion, and nippers were made thereafter as soon as possible after that pattern or model.

Counsel for Johnson formally objects to so much of the foregoing answer as is derived from hearsay.

3 Q. You say that immediately after making the acquaintance of Mr. Hall he handed you the specification and drawing of a patent for nippers, which you produce. Please state whether or not the copy of the specification and drawing which you produce is the specification and drawing of letters patent to Thomas G. Hall, dated May 14th, 1867, No. 64664.

A. Yes, sir.

Copy of specification and drawing referred to by witness put in evidence and marked Hall's Exhibit No. 6, September 5, 1881, W. H. B.

263 4 Q. You say that the nipper the Interchangeable Tool Company was organized to manufacture had not been patented at the time the company was organized. Please to state whether that nipper was afterwards patented, and give, if you can, the date of that patent.

A. It was afterwards patented, and the patent is dated November 5, 1878.

A copy of the specification and drawing of said patent offered in evidence and marked Hall's Exhibit No. 7, Sept. 5, 1881, W. H. B.

5 Q. State, if you please, whether the nipper described in the patent of November 5, 1878, is the same nipper of which Mr. Moses C. Johnson made the model while in the employ of Jencks or Jencks & Co., as you have stated.

A. It is; but the model for the application for that patent was not made by Johnson. The application was made before Johnson knew anything about it.

6 Q. But the model was, as I understand, the same substantially as the nippers described and illustrated by the patent?

A. It was.

7 Q. Was that model made before or after the patent was granted?

A. It was made after the patent was granted, to the best of my recollection.

8 Q. After that model was made did the Interchangeable Tool Company manufacture nippers like the model made by Jencks or Jencks & Co.?

A. They may have made some in the shop, but they never sold any.

9 Q. Now, please to fix the date, as near as you can, when Jencks & Co. made that model.

A. I am not sure, but I think it was between October, 1878, and January, 1879.

10 Q. Is that model in existence?

264 A. I believe it is, but do not know.

11 Q. Please to look at these nippers I now hand you and state, if you please, how the nipper made by Johnson at Jencks & Co.'s differed from it.

A. As near as I can recollect, in not having a pin running from one jaw to the other or the brass tit to hold the spring.

12 Q. By the pin you mean the guide pin immediately under the cutting edges of the nipper in its throat?

A. Yes, sir.

13 Q. And by the brass tit you mean the little brass piece that supports the spring and is held by the countersunk screw in the middle of the check plate?

A. Yes.

Nippers referred to offered in evidence and marked Hall's Exhibit No. 8, September 5, 1881, W. H. B.

14 Q. Did the Interchangeable Tool Company manufacture nippers like the Exhibit 8?

A. They may have made some in the shop, but never sold any.

15 Q. Please to fix the date, as near as you can, when you first saw the Exhibits Nos. 3 and 3 X.

A. It must have been in the early part of the year 1879; M. C. Johnson was then in our employ.

16 Q. Can you recollect whether it was cold or warm weather when you saw them?

A. I think it was cold weather.

17 Q. Who was present when you first saw them?

A. J. M. Adams, Thomas G. Hall, A. Gustam, and, I think, J. F. Oliver.

18 Q. At the time you first saw the Exhibits Hall 3 and 3 X did Mr. Hall explain to you the object of the pins opposite the fulcrum and claim it as his invention?

A. He did both, and, further, referred to its being a return to his old invention of 1877.

265 19 Q. What did Mr. Hall say was the object of these pins in these handles, Exhibits 3 and 3 X?

A. He said that their object was to cause the handles and jaws, principally the jaws, to move together with regularity and to prevent one jaw from moving any faster than the other.

20 Q. Previous to the time of your first seeing these Exhibits 3 and 3 X did Mr. Hall tell you of this invention and explain it to

you in such manner as to enable you to understand it; and, if so, when? State as near as you can recollect.

A. He spoke to me about it first when I first met him, before August, 1878, so that I understood what he meant, and afterwards before November, 1878, and at different times before these Exhibits 3, 4, and 5 were made. I made several drawings for him showing cogs in the handles, which we then called the gear arrangement; but all of those sketches have been lost or mislaid, except the one I have produced.

21 Q. Referring now to the sketch which you have produced, and which shows a cog union between the two handles at the fulcra, state, if you know, when it was that you made that sketch.

A. I think it was in October, 1878, although I may be mistaken, I made so many, and that may have been the one I made for Mr. Hall after the conversation with Curtis.

22 Q. Was Mr. Hall present when you made this sketch, and was it made for him to illustrate his idea of joining the two handles with a cog union or gearing, as you have expressed it?

A. Mr. Hall was present and it was made to illustrate his idea, and he at that time made the little sketch in the lower left-hand corner.

Sketch referred to by witness offered in evidence and marked Hall's Exhibit No. 9, September 5th, 1881, W. H. B.

266 23 Q. Was this sketch, Hall's Exhibit No. 9, and those like it made about the same time—made before or after you saw this drawing, Hall's Exhibit No. 2?

A. I cannot say; I have made so many, both for Mr. Hall in that rough manner in my own house and in Mr. Gustam's house at various times between September, 1878, and May, 1879, that I cannot identify this one.

24 Q. Please to examine the nippers I now place in your hands and state whether the Interchangeable Tool Company has made or caused to be made any nippers like that.

A. They have; over 30,800, I should think.

25 Q. State, if you please, when it was that the Interchangeable Tool Company made or caused to be made the first nipper like that referred to by you in your last answer.

A. I cannot tell exactly, except that it was after the removal to Hudson street.

Nippers offered in evidence and marked Hall's Exhibit No. 10, September 5th, 1881, W. H. B.

26 Q. State, if you please, who it was that made the first nipper like this Exhibit No. 10 for the Interchangeable Tool Company.

A. The first one, I think, was the model which was made by M. C. Johnson while in our employ. I meant to say the employ of the company.

27 Q. State, if you please, whether this nipper, Exhibit No. 10, was made by the company as the perfected invention of Thomas G. Hall, of which Exhibits 3, 3 X, 4, and 5 were the rude embodiments.

Question objected to by counsel for Johnson as leading, as suggesting to the witness the exact answer required, and as containing assumptions not warranted by previous testimony.

267 A. It was; excepting the large hole in the plate, which has been made to show the inside.

28 Q. At the time Mr. Johnson was in the employ of the Interchangeable Tool Company and was making the model of the nippers Exhibit 10 did he lay claim to the nipper as his invention?

A. He did not, to my knowledge.

29 Q. Did he claim to be the inventor of a part of the nipper?

A. He did not, to my knowledge; but at that time, while working on this very thing, frequently spoke of his endeavors to make symmetrical and perfect the toe end of the handles and about the shape and curve which should best be given to the cogs already decided upon; and at no time at any of these conversations, when he was working on this spur and notch arrangement, did he allude to the fact that he had already, in October, 1878, invented the same thing. He knew at that time that I was the company's lawyer, and that I would have charge of their business of patenting, etc.

30 Q. At the time that Mr. Johnson was making the model of the nippers, Exhibit No. 10, did he have knowledge that it was the intention of the company to patent it as the invention of Mr. Hall?

A. I do not know.

31 Q. When did you first have knowledge that Mr. Johnson claimed to be the inventor of this nipper or any part of it?

A. In August, 1880, Mr. Henry G. Thompson, of Milford, in the company's shop at Milford, Connecticut, informed me and several others that he had a patent or was about to have issued a patent for this improvement in the name of M. C. Johnson, assignor to Thompson.

32 Q. State, if you know, when Mr. Hall first took steps to apply for a patent for this invention of the nipper, Exhibit 10, and state, if you please, what steps he took to that end.

A. He first took steps to that end in 1879, when the im-
268 provement was perfected, but they were never carried to completion because the company had barely sufficient money to meet its pay-roll. The next step that was taken was to apply for a patent through Munn & Co., in France, upon the improved nipper claimed by Johnson, which application was started in December, 1879, but was not put on Munn's books until January 31, 1880, for the same reason—lack of money; and when it was formally begun by them the fee had to be borrowed, the intention being to immediately apply in the United States. The French application was then made because a French trade was then offered for those nippers.

After that time there was no money for the United States patent, and when H. G. Thompson, Esq., informed us of his procuring the application in the United States by Moses C. Johnson for the same thing the Interchangeable Tool Company had Amos Broadnax, Esq., draw up an application for a patent in the United States for the im-

provement, which was sworn to by Thomas G. Hall, in Milford, Conn., but nothing further was done about it, because the company was failing, and in a few weeks thereafter was put in the hands of a trustee, under the Connecticut law.

33 Q. You say that a patent was applied for in France for this invention. Please to state whether a French patent was obtained for this invention. Please to state whether you recognize the paper I now hand you as a copy of the specification and drawing of that application.

A. Yes, sir; I do. This copy of the specification was made by me from the original patent; the drawing is the original one sent from France.

The drawing of the French patent and copy of the specification offered in evidence and marked Hall's Exhibit No. 11, Sept. 5, 1881, W. H. B.

(Signed) WILLIAM Q. JUDGE.

269 Cross-examination of William Q. Judge waived by counsel for Moses C. Johnson.

WILLIAM H. BROADNAX,
Notary Public.

NEW YORK, *August* 11, 1881.

Mr. J. F. OLIVER, a witness produced on behalf of Hall, deposes as follows:

1 Q. Give your name, age, residence, and occupation.

A. My name is James F. Oliver; age, 28 years; residence, Brooklyn; am purser of a steamboat at present.

2 Q. Do you know Thomas G. Hall, J. M. Adams, and Moses C. Johnson?

A. Yes.

3 Q. What was your position in the Interchangeable Tool Company from its organization until you ceased to be an officer of it?

A. I was its treasurer from its organization until about February 20th, 1880. From that time until about January, I think, 1881, I was its secretary.

4 Q. State what your duties were during those times and the quality of your connection with its affairs.

A. Up to January 1st, 1880, I had no active part in the company's business; I had charge of its funds simply, and visited its office for a short time about twice a week. After January 1st, 1880, I was its book-keeper, and did the office work of the company.

5 Q. How often were you in communication with Mr. Hall in relation to the nippers during all that time? I mean as nearly as you can recollect.

A. At irregular intervals of from to or three days to a week up to about February 20, 1880; from that time until September, 1880, daily.

270 6 Q. Do you remember when the shop in which Mr. Hall worked for the company was in Harlem and the kind of nippers there being made? If so, please state all you know on that subject.

A. The company's shop was in Harlem from about September, 1878 or 1879—I think it was 1878—until about January, 1879. The nipper being made about that time was a pair of handles operating as levers on the ends of a pair of cutting jaws, these four parts being held together by two plates fastened with four screws, which formed pinions or fulcra upon which the handles and jaws moved. The jaws were held apart by a V-shaped spring, which spring was supported by a brass block held between the plates by a screw.

7 Q. Give the chronological order of the employment by the company of J. M. Adams and Moses C. Johnson and their duties and positions.

A. I cannot recollect the dates exactly. Mr. J. M. Adams was employed about April 10th; Mr. M. C. Johnson about a week later, to the best of my recollection. It was subsequent to the employing of Mr. Adams, I am positive. Mr. Adams was employed as foreman, and to see that the models, tools, and machinery for manufacturing a perfect nipper were properly made and put in working order. Mr. Johnson was employed as his assistant and under his direction, as model-maker and at times draughtsman.

8 Q. State, if you know, when the question of altering the handles, the adjustment of the spring, and the addition of a stop-screw in the handles arose, and the circumstances connected therewith, as fully as possible.

A. I first heard——

Interrupted by counsel for Johnson, who asks the magistrate to instruct the witness that he is only to state what he knows from his personal knowledge.

271 My first knowledge of a proposed change in the handles came from a conversation between Mr. Hall, Mr. Judge (Wm. Q.), and myself, had in Mr. Judge's office. On that occasion the question of putting a gear between the handles was mentioned, by which of the party I do not remember. A nipper patented by Mr. Kennedy was alluded to, and the question of applying the gear principle used in the Kennedy nipper to Mr. Hall's invention was discussed. Mr. Judge (Wm. Q.) made a sketch showing an application of the gear to Mr. Hall's nippers. I remember Mr. Hall saying that he had tried the same device, and that it did not seem to him to be all that was needed, for the reason that it did not provide against the striking together of the cutting edges of the jaws, and that he thought he could devise a better way to perfect the tool.

Examination of Oliver adjourned to August 12, 1881.

The examination of the witness further adjourned, according to stipulation of counsel, dated Aug. 11, 1881.

WM. H. BROADNAX,
Notary Public.

272 In the United States Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

Interference. Nippers.

Theodore G. Ellis, Esq., Hartford, Conn.:

Please to take notice that on Monday, the tenth day of October, 1881, at ten o'clock in the forenoon of that day, at my office, 57 Broadway, in the city of New York, I will proceed to take the testimony of Thomas G. Hall, J. F. Oliver, Henry S. Rogers, Thomas H. Thompson, and Edgar L. Pope and others, to be used upon the hearing of said interference on behalf said Hall, and you are invited to be present and cross-examine.

Very respectfully, AMOS BROADNAX,
Attorney for Hall.

Dated October 5, 1881.

Service accepted.

THEO. G. ELLIS,
Attorney for Johnson.

273 NEW YORK, *Oct.* 10*th*, 1881.

Parties met pursuant to notice and adjourned until Oct. 11th, 1881, 10 o'clock a. m.

NEW YORK, *Oct.* 11, 1881—10 a. m.

Parties met pursuant to adjournment.

Present: Amos Broadnax, counsel for Thomas G. Hall; Theodore G. Ellis, counsel for Moses C. Johnson.

Counsel stipulate that no objection shall be taken to the testimony about to be put in on behalf of said Hall, upon the ground that it was not taken within the time limited by the Patent Office for the putting in of testimony on behalf of said Hall, or upon the ground that the names of the witness or witnesses were not sufficiently given in the notice.

The examination of J. F. OLIVER resumed:

9 Q. Question and answer 6 in in your previous examination is as follows:

(Counsel reads question and answer.)

Please to state, if you can, definitely whether it was in September, 1878 or 1879, that the shop was in Harlem.

A. I am positive that it was in September, 1878.

10 Q. I read to you question and answer No. 7 of your previous examination.

(Counsel reads question and answer.)

Please to state what year it was that Mr. Adams and Mr. Johnson were employed in April, as you stated in that answer.

A. It was in the year 1879.

11 Q. I place in your hands a pair of nippers, being Exhibit No. 10 in this case. Please to state when or where you first saw a pair of nippers of that construction.

A. In the Interchangeable Tool Company's shop, in Hud-
274 son street, New York. It was about July 1st, 1879.

12 Q. Was that *the* nipper to which you refer in your last answer a perfected nipper, like the exhibit to which you refer?

A. It was.

13 Q. Please state when it was you first saw a nipper in which the two handles were united by a gearing opposite their respective fulcrums and having the same general principle that this exhibit has, to which we have been referring.

A. To the best of my recollection, it was in May or June, 1879?

14 Q. Where did you see it?

A. At the tool company's shop, in Hudson St.

15 Q. State, if you know, who made it.

A. The first one I saw had wire pins inserted in the handles to form the teeth or cogs. It was shown me by Mr. J. M. Adams, who said that he had made it.

16 Q. Did Mr. Adams say that he had made the nipper, or that he had merely put the pins in to form the cogs that united the two handles?

A. He told me that he had put the pins in. I understood that it was an old model or experimental nipper. I was wrong in stating that he said he had made it.

17 Q. Please to examine the two nipper handles I now show you, marked Exhibit 3 and Exhibit 3 X, in this case, and state whether these are the same handles that composed a part of the nipper Mr. Adams showed you, with the pins in at that time, or whether they are handles of a nipper having pins in them like the handles of the nipper he showed you at that time.

A. These are like the handles of the nipper Mr. Adams showed me. I cannot identify them as the same handles.

18 Q. State, if you please, how many pins forming the cog connection between the two handles were in those handles that Mr. Adams showed you.

275 A. I don't recollect how many pins there were.

19 Q. After Mr. Adams showed you this nipper with the pins in the handles when did you next see a nipper at the works of the Interchangeable Tool Company in a nearer state of perfection, having substantially the principle embraced in the nipper Exhibit No. 10, in so far as the principle relates to the joining of the two handles by a cog connection?

A. I think it was about the end of June, 1879, that I saw a model nipper which had the cog connection between the handles like the Exhibit No. 10 in the works of the Interchangeable Tool Company.

20 Q. State, if you know, who made that model nipper.

A. I saw it in the hands of Mr. Johnson, who said that he had made it. I knew him to have been working on the model for some time previous.

21 Q. In whose employ was Mr. Johnson at that time?

A. In the employ of the Interchangeable Tool Company.

22 Q. This model that Mr. Johnson made—was it an entirely new pair of nippers or was it a pair of nippers altered from the form of nippers shown substantially by Exhibit No. 8 to the form and principle substantially of the nipper Exhibit No. 10?

A. It was an old pair of model nippers which had been made substantially in the form of Exhibit No. 8, and which has been altered and was subsequently used as a model nipper from which tools were made for the manufacture of nippers such as Exhibit No. 10.

23 Q. Please to point out the principle distinguishing difference between the models Exhibit No. 8 and Exhibit No. 10.

A. Exhibit No. 8 has no cog connection between the handles and Exhibit No. 10 has cog connection.

24 Q. Then, as I understand you, the alteration that Mr.
276 Johnson made upon the nippers, substantially as shown in Exhibit No. 10, was to make the cog connection between the two handles?

A. Substantially, yes.

25 Q. Please to state, if you know, how that alteration was made.

A. Pieces of metal were dovetailed or brazed onto the handles in places where the gear connections were made.

26 Q. State, if you know, where that model is.

A. I do not know where it is.

27 Q. In whose possession did you last see it?

A. I last saw it in parts on Mr. Johnson's bench in Hudson street, New York, at the shop of the Interchangeable Tool Company.

28 Q. In answer to Q. 8 of your previous examination you say: (Counsel reads question and answer.) Please to state when it was that the conversation alluded to in that answer took place, as near as you can recollect.

A. I am unable to fix the date very closely, but it was some time in the early spring of 1879. It was either about the time of the employment of Mr. Adams by the tool Co. or shortly before it. I know that it was previous to the alteration of the old model or the fixing of pins in the handles, about which I have testified.

29 Q. In the answer which I last read to you of your previous examination you say that Mr. Judge made a sketch showing an application of the gear to Mr. Hall's nipper. Please to examine this sketch now shown you, marked Hall's Exhibit No. 9, and state if you recognize it as the sketch referred to in your answer to Q. 8.

A. It was a sketch like this one, but I can't swear to that being the same piece of paper.

30 Q. State, if you know, whether Mr. Adams put the pins in the handle of the nipper to form the gear, as you have testified, from the sketch made by Mr. Judge so as to carry out the principle
277 of uniting the two handles with the cog gearing, as talked about in the conversation between Mr. Hall, Mr. Judge, and yourself, as referred to — you in your answer to question 8.

A. I am unable to say.

31 Q. State, if you know, whether or not Mr. Johnson made the alteration in the model so as to convert the nipper, Exhibit 8, with no gearing between the handles, into Exhibit 10, with the gearing between the handles, from a drawing.

A. I could not say that he did from my own knowledge.

32 Q. At the time that Mr. Johnson was working on the model nipper about which you have testified, did you have any conversation with him upon the subject of the nipper?

A. None of any importance and none that I can recollect.

33 Q. State whether or not, at the time Mr. Johnson was making the model nipper, you heard him or heard of him claiming to be the inventor of that nipper or any part of it, and especially that part which includes the joining of the handles with the gear connection.

A. I never heard of his making any such claim or claims while in the company's employ.

34 Q. Please to examine the book I now show you and state, if you know, whether or not it is the minute book of the Interchangeable Tool Company.

A. I recognize this as the minute book of the Interchangeable Tool Company.

35 Q. If there is a minute of any resolution in that book passed by that company directing that a patent be taken out in France for the nipper like the nipper shown by Exhibit 10, please to read the resolution or the minute of it.

A. There is such a resolution on the date October 7th, 1879. The resolution reads as follows: "On motion of Mr. Harris, it was resolved that the secretary be instructed to apply immediately
278 for a French patent on the Hall nipper and, as soon as practicable, for the Belgium and Swiss patents."

36 Q. State, if you know, who was the secretary of the company at the time that resolution was passed.

A. Mr. A. Gustam.

37 Q. State, if you know, whether that resolution which you have read is in the handwriting of Mr. Gustam, secretary.

A. It is.

Counsel for Mr. Johnson admits that the resolution which the witness read or quoted is a true transcript of the resolution found in the minutes of the Interchangeable Tool Company, and it is agreed between counsel that said book shall be held in possession of counsel for Mr. Hall, and such parts thereof as relate to the matter in controversy shall be subject to the examination of counsel for Mr. Johnson.

Cross-examination of witness by Mr. ELLIS, counsel for Johnson:

38 X Q. Did you have any direct supervision of the mechanical work of the Interchangeable Tool Company?

A. No.

39 X Q. When you saw the nipper handles marked Exhibit 3 and

Exhibit 3 X, referred to in your direct examination, were they separate, as they are now, or in a pair of nippers?

A. They were in a pair of nippers, which were taken apart so that I might see how they were made.

40 X Q. Were the teeth or cogs in the condition that they are now, or did the number of cogs vary from those shown in the present exhibits?

279 A. They were not in the condition they are now; there were more pins forming the cogs.

41 X Q. Do I understand you, then, to swear that you saw such handles as these shown in Exhibit 3 and Exhibit 3 X in a pair of nippers and in working condition and having more cogs or teeth than are now shown?

A. Yes.

42 X Q. How many cogs or teeth were there in the nippers you saw, and how were they situated with respect to the handles?

A. My recollection is that there were in one handle two teeth and in the other three. They were situated substantially as those that remain in these handles.

43 X Q. When you saw the pair of nippers put together and in working condition was there anything peculiar with regard to the position of the handles with regard to the other parts of the nippers?

A. I don't recollect its appearance, except that it was a roughly made model, simply to show the movement of the handles.

44 X Q. If one of the handles had stood at a different angle to the axis of the nipper than the other would you not have observed it?

A. I can't say what I would have observed. All that I remember has been stated in the answer to the previous question.

45 X Q. In your 25th answer you say, "Pieces of metal were dovetailed or brazed onto the handles in places where the gear connections were made." Are you sure that the pieces brazed or dovetailed onto the handles were for the purpose of forming the gears?

A. I was told so by Mr. Johnson; that is all I know.

46 X Q. In your answer to the 35th question you say that the resolution in the minutes of the Interchangeable Tool Company refers to a nipper like Exhibit No. 10. How do you know that to be a fact?

280 A. I think I know it because we were then manufacturing nippers like nipper Exhibit No. 10 and we intended to patent that nipper in France; certainly not any other.

47 X Q. Are you quite sure that at the time of the passage of that resolution you were manufacturing nippers in all respects like Exhibit No. 10?

A. I am quite sure that that is the kind of nipper we were manufacturing at the time, if we were manufacturing any nippers then. It is possible that we had not yet got the nipper on the market. We were either manufacturing it or preparing to manufacture it.

48 X Q. The words of the resolution are "the Hall nipper."

Did you not manufacture a nipper before and up to the time of the resolution known as the Hall nipper which did not embrace the features and exact construction shown in Exhibit No. 10?

A. If we did I did not know it. There may have been some others made, but they were experimental.

49 X Q. Was not the nipper which you manufactured of the construction shown in Exhibit No. 8 known as the Hall nipper?

A. So far as it was known at all; yes.

50 X Q. Do you know anything of the circumstances relative to a change that was made in the application for the French patent, either with or without Mr. T. G. Hall's knowledge or consent, after the specification was first prepared?

A. No; I do not; don't know when the specification was prepared, for that matter.

Redirect examination of witness by Mr. BROADNAX:

51 Q. State if you know whether or not a patent was applied for in France in conformity with the resolution you have read from the minutes of the company.

281 A. It was not applied for immediately, but was subsequently applied for.

52 Q. Were you a director of the company at the time the resolution was passed?

A. I was.

53 Q. Were you present at the time the resolution was passed?

A. I was.

54 Q. State whether or not it was the intention of the directors of that company in passing that resolution to patent the nipper in France, having its two handles connected by cog gearing.

A. It was certainly our intention to have the nipper patented in France, having the handles connected by the gearing, at the time of the passage of the resolution; I distinctly remember that matter being referred to in conversation between ourselves.

55 Q. State, if you know, whether or not a patent was subsequently granted in France for that nipper.

A. Yes; there was.

56 Q. Did you see the French patent?

A. Yes; I have seen the French patent.

57 Q. Please to examine the paper I now show you, marked Hall's Ex. No. 11, and state if you recognize it as the French patent granted for the nipper in question or a copy of it.

A. I recognize this as a copy of the French patent.

58 Q. Please to examine the minutes of the company, to which you have referred, and state if you find anything there that satisfies your mind that the Interchangeable Tool Co. was manufacturing the nipper substantially like the nipper Hall's Exhibit No. 10 in the fall of 1879; and, if so, please to read any passage you find in the minutes that serves to refresh your memory upon that subject.

A. I find in the minutes of a meeting of stockholders of the Interchangeable Tool Co. held September, 16, 1879, a statement made by the secretary, Mr. Gustam, as follows:

282 "The factory is now producing ten dozen nippers per day, which the company sells to Peter A. Frasse & Co. at nine dollars per dozen, net cash."

59 Q. State, if you please, whether or not the nipper shown by Hall's Ex. 10 has always been known as the Hall nipper ever since the company commenced to manufacture it.

A. It always has been so known.

60 Q. State if you have ever heard it called by any other name.

A. I never have.

Recross-examination:

61 X Q. About how many pairs of nippers did your company make without the gearing between the handles?

A. That I cannot say; there were none made by the company without the gearing that were offered for sale.

J. F. OLIVER.

283 ROBERT W. CRANE, a witness produced on behalf of Mr. Hall, having been duly sworn and interrogated by counsel for Hall, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Robert W. Crane; 53 years of age. I reside at 436 Polaski street, Brooklyn, N. Y. I am a machinist.

2 Q. State whether you are acquainted with Thomas G. Hall.

A. Yes, sir.

3 Q. About how long have you been acquainted with Mr. Hall?

A. Twelve years.

4 Q. State whether or not you were in the employ of the Interchangeable Tool Company in the fall of 1878.

A. Yes, sir.

5 Q. Where were the works of the Interchangeable Tool Company at that time?

A. They were located at Harlem.

6 Q. State, if you please, whether or not you had a conversation with Mr. Hall at the works of the Interchangeable Tool Company about the nippers that he was manufacturing; and, if so, please to state what the conversation was, or near as you can recollect.

A. I had such a conversation with regard to the nippers with Mr. Hall. Our conversation was in regard to the nipper, and making tools, jigs, and holders for the manufacturing of nippers.

7 Q. State, if you recollect, whether a conversation occurred between you and Mr. Hall about the joining of the two handles of the nippers by means of a cog connection.

A. It was spoken of between Mr. Hall and me. The trouble with the nipper was that the cutting edges travelled one faster than the other. We spoke about making a connection of the two handles.

284 Mr. Hall, with his pencil and on the bench, made a sketch of the two handles with a spur connection, which consisted of a hole drilled in one and a spur in the other.

8 Q. Please to take a pencil and reproduce the sketch, as near as

you can, that Mr. Hall made at the time referred to in your last answer.

(Witness makes the sketch.)

9 Q. Have you made the sketch as requested?

A. Yes, sir; and I produce it.

Sketch offered in evidence and marked Hall's Exhibit No. 11, October 11th, 1881, J. E. B., notary public.

10 Q. Please to take a pen and ink and trace the sketch you have made in ink. (Witness traces sketch as requested.) Have you traced the sketch in ink?

A. I have.

11 Q. Please to point out now in which handle the hole is made and designate it with the letter A, and mark the handle that has the pin in with the letter B. Please to mark the pin with the letter C, and the hole with the letter D. What was the object of the pin and hole that Mr. Hall illustrated by his sketch, as you have shown me?

A. To make the two jaws travel in uniformity together.

12 Q. That was the purpose of the thing as he explained to you at that time?

A. Yes, sir.

13 Q. When was that?

A. Somewhere in the neighborhood of the 15th or 20th of September, 1878, at the shop at Harlem.

14 Q. Please to look at these nipper handles, marked Exhibit No. 3 and 3 X, and state how the sketch that Mr. Hall showed you, as you have testified, differed from the arrangement of pins in these two handles.

A. In these two handles there are two spurs. In the
285 handle of Mr. Hall's there was but one spur connecting with a hole drilled in the opposite handle, which formed the connection.

15 Q. Was the hole and the pin in Mr. Hall's sketch in about the same position with reference to the fulcrum holes that the pins are in these handles?

A. About the same; possibly a little higher up or lower down.

16 Q. In that conversation did Mr. Hall propose that as an improvement upon his nipper, or did he show you that to illustrate something that he had done before?

A. He claimed it as an improvement to equalize the travel of the jaw.

17 Q. Do you recollect whether or not Mr. Hall told you at that conversation that he had tried that plan of connecting the handles of the nipper with the hole and pin in the beginning of the year 1877?

A. I remember Mr. Hall speaking something of the kind, but I can't recollect whether he said it was in the beginning of the year 1877. It was not at the time he made the sketch he told me this, but it was at a subsequent date.

Cross-examination of witness by counsel for Mr. Johnson:

18 Q. Mr. Crane, how long were you at work for the Interchangeable Tool Company?

A. From September 1, 1878, until January 1, 1879.

19 X Q. What particular duty did you perform while you were with the Interchangeable Tool Company, and what were you employed to do?

A. I was employed to make tools and models.

20 X Q. In this sketch that was shown you by Mr. Hall was the construction so definitely shown that you could have made a practicable and operative pair of nippers on that plan?

286 A. I could by the connection of the two handles.

21 X Q. Did you make any such?

A. I did not.

22 X Q. Why did you not?

A. I was not directed by Mr. Hall to do so.

23 X Q. Did you go on and make nippers or models according to the old plan after Mr. Hall had shown you this sketch?

A. I finished two pairs—the largest size and the smallest size—which, I think, they now make for models.

24 X Q. Then Mr. Hall's plan of the hole and pin was abandoned at that time, was it not?

A. There was nothing more said about it at that time; there was a number of pairs of nippers unfinished that I had finished without the spur connection.

25 X Q. Would you, as a mechanic, consider the pin and hole as shown in the sketch you have drawn an operative device for making the handles move together without binding or without having lost motion?

A. The spur and hole connection is the principle on which the handles are now connected. They are now with a single spur acting between two spurs.

26 X Q. Question repeated and read to the witness.

A. I believe mechanically it could be done without binding or having lost motion, although it might be difficult.

27 X Q. After you had heard of this plan as shown to you by Mr. Hall did you consider it an improvement on the old plan at that time?

A. I did; a very great improvement.

28 X Q. Then can you give any good reason why it was not adopted?

A. Shortly after this they moved to Hudson street, and there was nothing done there in the manufactory on nippers as long as I remained with the company.

287 29 X Q. Will you look at handles marked Exhibit 3 and Exhibit 3 X and say when you first saw them?

A. To-day is the first time I ever saw them.

30 X Q. Will you please place them together in the position in which they would go into a pair of nippers and say if the single tooth now remaining upon No. 3 could have entered between the

two teeth which were originally upon Exhibit 3 X and made an operative pair of handles? You will please observe the position of the teeth with relation to the holes for the pivot screws.

A. It could not; the pins are too close together.

31 X Q. Will you place the two handles in their proper relative positions to the holes in the plates of Exhibit No. 5 and examine the position of the remaining teeth and tell me if the single tooth on Exhibit 3 could come at all between the two teeth on Exhibit 3 X?

Counsel for Hall objects to the question on the ground that it isn't cross-examination; and on the further ground that he hasn't called the witness as an expert, but merely to prove that Thomas G. Hall in the fall of 1878 showed to the witness a sketch indicating the idea of joining the two handles together by a cog connection—an idea which Hall afterwards followed up and perfected; and upon the further ground that the witness can't answer the question properly, because he has no means of fixing the handles in place; and upon the further ground that it isn't material in any aspect of the case whether the pins would come as indicated in the ques-
288 tion or not or whether the thing was an operative thing or not, as the parts were put in evidence merely to show the previous conception of the invention and as part of a tentative effort to perfect it.

Question withdrawn.

Counsel for Johnson makes a formal objection to so much of the testimony of this witness as would appear to antedate the preliminary statement of Thomas G. Hall.

R. W. CRANE.

Adjourned until October 12th, 1881, at 10 o'clock a. m.

289 *Testimony in Rebuttal. Edgar L. Pope's Direct.*

MOSES C. JOHNSON *vs.* THOMAS G. HALL.

Interference. Cutting nippers.

NEW YORK, *May* 24, 1882.

Parties met pursuant to agreement.

Present: Theodore G. Ellis, Esq., counsel for Johnson, and Amos Broadnax, Esq., counsel for Hall.

EDGAR L. POPE, a witness produced on behalf of Hall, being duly sworn, in answer to interrogatories propounded by Mr. BROADNAX, deposes as follows:

1 Q. State your name, age, residence, and occupation.

A. My name is Edgar L. Pope; age, 38 years; reside corner of Barclay and West streets, New York; my occupation is machinist and tool-maker.

2 Q. State whether you are in the employ of the Interchangeable Tool Company.

A. I am.

3 Q. When did you first go in the employ of that company?

A. Last July or fore part of August, 1879.

4 Q. And have you remained in the employ of that company from that time to this?

A. I have not, but have been with it all the time they have been running—doing any business.

5 Q. Are you acquainted with Moses C. Johnson and James M. Adams?

A. I am.

290 6 Q. Were they in the employ of the Interchangeable Tool Company at the time you went in the employ of that company?

A. They were.

7 Q. Please to examine the nipper I now show you and state if you recollect of seeing this nipper at the works of the Interchangeable Tool Company; and, if so, state when you first saw it there.

Counsel hands the witness Hall's Exhibit No. 20.

A. I haven't any recollection of having seen the nipper at the company's works.

8 Q. Please to examine model I now show you and state if you recollect of ever having seen it at the works of the Interchangeable Tool Company.

Counsel hands witness Johnson's Exhibit C.

A. I have a recollection of seeing something that this reminds me of certain, but can't say I have seen this one.

9 Q. Did you ever see a model at the works of the Interchangeable Tool Company like that, having iron or steel jaws like that, and brass handles like that?

A. I couldn't say that I have; I have seen something that resembles this.

10 Q. Please to state what kind of a model you saw at the works of the Interchangeable Tool Company that that model reminds you of.

A. I have no recollection of ever seeing a model that was assembled; I have simply seen parts that were used as model parts but not assembled.

11 Q. Then, as I understand you, you don't recollect of ever having seen a model like that at the works of the Interchangea-
291 ble Tool Company in which all the parts were put together as in this model, Exhibit C.

A. I don't have any recollection of ever having seen any assembled.

12 Q. By assembled you mean put together?

A. Yes, sir.

13 Q. State when it was, as near as you can recollect, that you first saw at the works of the Interchangeable Tool Company any parts of a model like this model, Exhibit C.

A. Well, it was soon after I went into their employ. I saw them on Mr. Adams' bench.

14 Q. What parts of such model did you see on Mr. Adams' bench?

A. I saw the brass part—the skeleton handles.

15 Q. Do you recollect seeing the steel or iron jaws of the model also, made flat like these?

A. I recollect seeing them in the shop, but can't say just where or when. I remember particularly about the handles when I first went in the shop to work.

16 Q. State if you recollect of ever having seen these skeleton jaws of this model used for adjusting the milling tools in the works of the Interchangeable Tool Company.

A. I never saw those jaws used for that purpose, nor any of the model jaws used for that purpose.

17 Q. Please look at the jaws of the model Exhibit C and state whether you observe on the inside and outside edges the marks of the milling tools.

A. I can see them very distinctly on one jaw.

18 Q. Please to examine these templates which I now show you and state whether or not they are the templates of the Interchangeable Tool Company by which the milling tools are made to mill the jaws of the No. 2 nipper?

292 Question objected to by counsel for Johnson, as the templates shown are not in evidence and as the question calls for evidence-in-chief.

A. They are templates which belong to the Interchangeable Tool Company, and they are templates which we use to gauge our work after the milling tools are run over it, to show whether the milling tools are cutting the right shape or not.

19 Q. Please to compare those gauges with the jaws of the model Exhibit C, and state whether, in your opinion, the jaws of that model have been milled with the milling tools of the Interchangeable Tool Company used by it in milling the jaws of the No. 2 nipper.

Question objected to, as the templates produced are not in evidence and show nothing upon which to found the opinion of the witness, and the question calls for evidence-in-chief and not in rebuttal.

A. They don't just compare with the gauge at all, but still they may have been milled by the tools of the Interchangeable Tool Company. It is almost impossible to keep the tools in exactly the same shape, but there is considerable variation here. Sometimes in grinding the mills you have to grind them by hand, which makes it difficult to keep them in just the same shape.

20 Q. State whether, in your opinion, the jaws of the model are near enough in form on their edges like the templates I have shown you to warrant the opinion that they were milled by mills originally made after the templates.

Objected to for same reason as before, and for the additional reason that it is leading.

293 A. I should say they were near enough.

21 Q. If these templates had been made after the jaws of the model Exhibit C, using the jaws as the model nipper, wouldn't the templates conform exactly to the form of the jaws and exactly fit the jaw both inside and outside?

Question objected to, as there is nothing in the evidence-in-chief in relation to these templates and nothing is known what they are.

A. Providing they were made as they should be made and by a tool-maker that understood his business, they would.

22 Q. State if you know who make these templates.

A. I couldn't state positively, but am under the impression that they were made by Elbert A. Whittelsey.

23 Q. State whether, in your opinion, these templates were made by an expert tool-maker.

A. That's a very difficult thing to state. If I had — before me positively I could state. My impression is they were made by Mr. Whittelsey, and I should call him a first-class tool-maker.

24 Q. State, if you please, whether the templates about which you have been testifying are the same templates that are now used by the Interchangeable Tool Company to test the form of the jaws of the No. 2 nipper now manufactured by the Interchangeable Tool Company, and whether they are the same templates that have been used by that company for that purpose ever since you have been in their employ.

A. They are the same templates that are used now, and I have never known of any other being used, since I have been in their employ, for that purpose.

294 25 Q. State whether or not, in your opinion, any competent tool-maker would use the model jaws of this nipper to adjust the milling tools by in the manufacture of the nipper—allowing the milling tools to run over the model in such manner as to leave the marks of the milling tools on the model as they appear on one of the jaws of the model Exhibit C.

A. They would not by any means, providing it was used as a model.

26 Q. State whether or not you consider Moses C. Johnson a compent tool-maker.

A. I do.

27 Q. State whether or not, in your opinion, Moses C. Johnson would, in the manufacture of these nippers, take the parts — several of his model nippers and put them in his milling fixtures and run the mills over them for the purpose of adjusting the mills.

A. I don't think he would.

28 Q. Do you think any competent tool-maker would do that?

A. No, sir.

29 Q. Please to examine the model I now show you, marked Exhibit No. 10, and state whether or not it is the No. 2 nipper manufactured by the Interchangeable Tool Company.

A. I should say it was.

30 Q. Please to state whether in the manufacture of these nippers the jaw is cut by the mills so as to fit the template and are afterwards polished by the emery wheel.

A. The jaws are supposed to be milled to fit the templates and then go to the polishing wheel and are polished. There are some few operations between, such as tempering, drilling the hole, etc.

31 Q. That in no way alters the shape?

A. Certainly not.

295 32 Q. Please look at the model I now show you, marked Johnson's Exhibit D, and state if you recollect of ever having seen it before or any of its parts and which of its parts you have seen before, if any of them.

A. I should say that these handles are the handles I saw on Adams' bench, which I spoke of in referring to model Exhibit C, but they were not put together with the jaws when I saw them.

33 Q. All that you recollect seeing were the handles, then?

A. I have no recollection of seeing the jaws before.

34 Q. When you say "Adams" what Adams do you refer to?

A. James M. Adams—I am not positive about the middle letter—he that was foreman of the works of the Interchangeable Tool Company at that time.

35 Q. State whether you have ever heard this Mr. Adams claim to be the inventor of the improvement in this nipper—which improvement consists of the gear connection between the two handles of the nipper.

A. Well, Mr. Adams either told me that he was the party who got the gear connection up or he told me that he had it done by Mr. Johnson; one of the two—can't remember which.

36 Q. State, as near as you can recollect, when it was that Mr. Adams told you this.

A. It was about the time I went in the employ of the Interchangeable Tool Company.

37 Q. Did he afterwards make the same statement to you, substantially?

A. I don't remember of any other conversation with regard to the matter at all.

38 Q. State whether you are acquainted with Augustus Gustam.

A. I am.

39 Q. State how long you have known him.

A. Since the last of July, 1879.

296 40 Q. State if you have ever had any conversation with Mr. Gustam about Mr. Hall's application for this patent—about the fees the company was paying Mr. Prescott, who was formerly attorney in the matter of this application—and state what Mr. Gustam said to you about such application and the fees for the same, as near as you can recollect.

Objected to by counsel for Johnson that any conversation between the witness and Mr. Gustam is irrelevant to this case and any state-

ments made by Mr. Gustam to the witness not under oath are not evidence.

A. I had conversation with Mr. Gustam on the subject, but couldn't relate it anything further than I remember his saying that the company was paying Mr. Prescott a very nice sum, and that Mr. Prescott was "divying" with him.

41 Q. State, if you know, what Mr. Gustam's reputation is for truth and veracity and integrity among those who know him and so far as you know yourself.

A. So far as I know it myself and so far as my friends that have been friends of his, it's not good.

42 Q. From what you know of Mr. Gustam yourself and his general reputation for truth and veracity and general integrity, state whether you would believe him upon oath.

A. I would not, under any circumstances.

43 Q. State, if you know, what is Moses C. Johnson's reputation for temperance and sobriety.

Question objected to as irrelevant.

A. Not good.

297 Cross-examination of witness by Mr. ELLIS, counsel for Johnson:

44 X Q. When did you first see the templates for the jaw of the No. 2 nipper that have been produced here to-day?

A. I saw them, if I remember rightly, shortly after I went in the employ of the company.

45 X Q. Are you sure you saw those identical pieces?

A. I am quite sure, as I never saw any other in the shop for that size.

46 X Q. Are those the only templates for that size of jaw that have been used in the shop of the Interchangeable Tool Company from the time you went into the employ of the company to the present time?

A. The only ones I ever saw to guage the edge cut.

47 X Q. Are there any marks upon them by which you know them?

A. There are none.

48 X Q. How do you identify them? I mean, how do you know that these particular pieces are the templates that had been used in the shop?

A. I have reason to believe they are, from the fact that they are kept in one place in the shop and I have occasion to use them myself very often, and seldom any one else uses them. In fact, I don't know of any one else ever using them when I have been working on milling work.

49 X Q. Can you swear that these two templates on the table before you are the same pieces that have been used in the shop?

A. I can, and the only ones to my knowledge.

50 X Q. How do you know them to be the same pieces?

A. Because I took them off the rack, where I put them myself, and no one else has been handling them. Besides, I know them from looks and design, &c.

298 51 X Q. Then, if those pieces were handed to counsel by Mr. Hall, they were out of your possession, were they not?

A. They were. I gave them to Mr. Hall myself.

52 X Q. Now, do you know them by any marks upon them, so that you can positively swear they are the same pieces you gave to Mr. Hall?

A. I don't know them by any marks, for there are no marks on them that I know of, but I know them from general appearance, design, etc., as I am accustomed to handle them every day or so.

53 X Q. Will you take the outside template and place it upon the outside of the jaw of the model C, that has the milling marks upon it, and say about how much space there is between the two curves or parts of circles at the top of the cutting part of the jaw when the ends of the curves touch?

A. There is very little space.

54 X Q. Which is the longest in all, from end to end, the jaw itself or the opening in the template?

A. The jaw is considerable; enough to spoil it, providing you were working exact to a gauge.

55 X Q. Will you now please place the other template upon the jaw and say whether the curves nearest the cutting edge fit each other?

A. I can't put the gauge so the curves will come together.

56 X Q. Are the curves next the cutting edge formed upon the same radius?

A. I have no way to ascertain.

57 X Q. When the ends of those curves are placed together is there not a crescent-shaped opening between them?

A. Yes.

58 X Q. Now, won't you put that same template on the jaw of Exhibit 10 and say whether there is the same crescent-shaped opening?

299 A. It is a little so, but not so much. The mill that takes the throat cut, as we call it, is supposed to be a true circle, and in grinding it by hand you are liable to get it out a little. Of course, that would account for the crescent-shaped opening in Exhibit 10.

59 X Q. Would that account for the crescent-shaped opening in the jaw of Exhibit C?

A. It would, providing they were milled with the same.

60 X Q. You say that the mills are intended to be a part of a true circle, and if the cut in the jaw of Exhibit C was made by those mills it would be part of a true circle, too, would it not?

A. The mills were intended originally to be a portion of a true circle. If the jaws of Exhibit C were milled by those same mills this would be a part of a true circle.

61 X Q. Is the corresponding curve on the template intended likewise to be part of a true circle?

A. It is so intended.

62 X Q. Then, if there is a crescent-shaped opening between the two when they are placed together, they are parts of different circles, are they not?

A: Parts of circles of different diameters; certainly. That is something that would occur from grinding the mills by hand.

63 X Q. Did you ever know Mr. Augustus Gustam to take a false oath?

A. Never did.

64 X Q. Did you ever know of his taking a false oath?

A. Never did.

65 X Q. Did any of your friends ever tell you that Mr. Gustam had taken a false oath?

A. Not that I remember.

66 X Q. What has any friend of yours said to you that has led you to believe that he would take a false oath?

A. No friend said anything to make me believe so.

67 X Q. What leads you to believe so?

300 A. From little business transactions that I have had with the gentleman myself that I don't wish to make mention of.

68 X Q. In that business transaction did he swear falsely to anything?

A. He made false statements.

69 X Q. Did any one else that you know ever make a false statement?

A. Not in the business transaction between Gustam and myself.

70 X Q. I mean at any time.

A. Not in connection with this affair.

71 X Q. I mean anybody at any time within five years.

A. I certainly have; of course.

72 X Q. Do you regard that as a reason why you should disbelieve those parties on oath?

A. It would depend a little upon what kind of a person he was otherwise.

73 X Q. Was your little business transaction with Mr. Gustam in the nature of a quarrel?

A. It was simply a business transaction?

74 X Q. If it will not criminate you in any way please give us an account of what it was.

A. At the time the Interchangeable Tool Company closed down their business in Milford they were owing their help some money, myself among the rest. I went to Gustam personally and asked him for the loan of some money. He told me he did not have it with him, but was coming to New York; I was also coming to New York, and that he would get it as soon as he got to the office in New York for me. When we got to New York he gave me the money out of his own pocket. When I came to settle up with the company this money that he loaned me was deducted from my account. Gustam had told me repeatedly that he had never made mention of this fact to any member of the company, nor never had en-

301 tered it upon the books himself, and afterwards came and

demanded the money of me after the company had settled it with me, charging it to my account. I told him the bill had been paid once, and he assured me that no member of the company had ever known anything about it at all. That is one of my particular reasons for believing that Gustam will take a false oath. A man who will attempt to wring money out of a friend like that will willingly take a false oath.

75 X Q. Did Mr. Gustam appear to be entirely sober, not under the influence of liquor, at the time this transaction took place?

A. I must say I could not say when Mr. Gustam was sober.

76 X Q. You have said that Mr. Gustam's general reputation for truth and veracity was not good. What have you ever heard against him in the way of remarks against his veracity?

A. I say it was not good from what transactions I have had with him myself—for instance, the one I have just stated.

77 X Q. I do not mean now what you know yourself as to particulars, but his general reputation amongst his acquaintances. What have you ever heard against his truth and veracity?

A. Every one I have heard speak of him has said he is a noted rascal. That ought to be sufficient.

Redirect examination by Mr. BROADNAX:

78 X Q. Please to state whether you have charge of the milling work at the works of the Interchangeable Tool Company.

A. I have.

79 X Q. Please to state whether, in case the jaws of the model Exhibit C had been made before the milling tools of the Interchangeable Tool Company were made and the templates about which you have been testifying were fitted to it, the templates ought not to exactly fit the jaws.

Objected to as leading.

302 A. They had ought to fit now just the same as they fitted then, and they ought then to have fitted exactly.

EDGAR L. POPE.

Subscribed and sworn to before me this 24th day of May, 1882.

[L. S.] J. EDGAR BULL,

Notary Public (132), *New York County, N. Y.*

Counsel for Hall offers the templates in evidence about which the witness has been testifying and which he has been trying upon the jaws of model Exhibit C and model No. 10, and the same are marked "Hall Exhibit Templates."

303 SAMUEL LEOPOLD, a witness produced on behalf of Hall, being duly sworn, deposes as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Samuel Leopold; am 27 years of age; reside No. 179 Bergen street, Brooklyn; occupation, merchant.

2 Q. State whether you are one of the officers of the Interchangeable Tool Company.

A. I am.

3 Q. What officer?

A. Secretary and treasurer.

4 Q. How long have you been such secretary and treasurer?

A. I was elected to the offices mentioned *pro tem.* on or about February 1, 1881, and was elected at the annual meeting of the company in August, 1881, for the ensuing term of one year.

5 Q. State whether you are acquainted with Augustus Gustam and how long you have known him.

A. I am, and have known him since the fall of 1878.

6 Q. State, if you know, what the reputation of Mr. Gustam is for truth and veracity and general integrity.

A. I have rather an unfavorable opinion of Mr. Gustam's integrity, etc., including veracity.

7 Q. Do you base your opinion of Mr. Gustam's integrity and veracity upon what you have heard of him from others or upon your own knowledge of him, or upon both?

A. Upon both?

8 Q. Please to relate, first, what you have heard of him from others; and, second, what you know of him of your own knowledge that leads you to conclude that he is a person of bad repute as to honesty and truthfulness.

Objected to, as it assumes what witness has not stated.

304 A. I have heard from others that he has been engaged in dishonest practices. What I have remembered most particularly was a case in which he was accused of stealing a diamond ring from a woman and for which he was lodged in jail. As secretary of the Interchangeable Company, I have found, upon a careful investigation of the books of said company, that from about the 24th of July, 1880, to about September 1st of the same year, during which time he was acting as general agent of the company and had his office in New York city, that a large quantity of nippers were shipped to him from the factory, at Milford, Connecticut. I should say the goods consisted of over 600 dozen nippers. The day book of the company shows that about two-thirds of these goods were accounted for. The balance I have been unable, in spite of the fact that I have demanded his shipping book, which he refused, to find any trace of. As secretary of the company, I have found that he has delivered goods to one house, I am positive, some time after his position as general agent ceased. The former assignee of the company, Mr. Henry S. Rogers, also informed me that during his term of assigneeship he had repeatedly demanded from Mr. Gustam an accounting of the goods that he, Mr. Gustam, had received, but failed to receive the same from him. After becoming the secretary of the company and after Mr. Gustam had resigned I at once took an active part in the management of the business. At that time the litigation which the company has with Mr. Henry G. Thompson had already commenced. Mr. Gustam had the matter in hand, as

I found, and had employed a Mr. F. A. Prescott, of Washington, as counsel for the company, to procure an interference. Having resigned, he ceased to act for the company, and Mr. Prescott continued the case. The officers of the company
305 still remained on apparently friendly terms with Mr. Gustam until about the month of July, 1881, as he was still a director of the company, his term not expiring until August, 1881. Mr. Gustam had claimed from time to time that the company was indebted to him a certain sum of money for various things, such as services, etc., but up to that time refused to render any account of the same. About that time, July, 1881, Mr. Gustam had a business connection with one Brown, of Hackensack, New Jersey, and approached me for the purpose of having me use my influence with my fellow-directors of the company to let him take from the factory at Milford various machines, polishing frames, etc., and to have it apply to his account, saying that if we found he owed us, as we claimed, he would pay us the cash. He also referred to the intimacy existing between Mr. F. A. Prescott, our attorney at that time, and Mr. Moses C. Johnson and himself, intimating that as M. C. Johnson was also interested in the business which he had with Mr. Brown that if we gave him the various machines, etc., that he asked for that it might influence Mr. Johnson to testify in a manner that would not be injurious to the company. The company refused to enter into any such negotiations, as it was plainly to be seen that it was dishonorable. After that Mr. Gustam was not re-elected as a director of the company, in August, 1881, and has had no connection with the company since.

Answer objected to by counsel for Johnson as being entirely irrelevant to any matter relating to this rebuttal; that it contains nothing against the credibility and veracity of Mr. A. Gustam as a witness, which can be the only ground of its introduction; that it is based in a large measure upon hearsay, and is an unwar-
306 ranted, slanderous, and venomous attack when brought in rebuttal, when it could not be replied to; that if anything in the books of the company show any irregularities in the transactions of Mr. A. Gustam the books themselves are the best evidence of the facts, and notice is hereby given to counsel for Thomas G. Hall to produce the said books in support of this witness.

Examination adjourned to May 25, 1882, at 10 o'clock, a. m.

MAY 25TH, 1882—10 o'clock a. m.

Parties met pursuant to adjournment.
Present: Same counsel and witness.

9 Q. State, if you please, any other facts or circumstances with which you are acquainted affecting Mr. Gustam's reputation for truth and veracity.

Objected to, except as to facts relating to his credibility as a witness.

A. Since I have become actively connected with the management of the Interchangeable Tool Company's affairs I have found a number of transactions by Mr. Gustam in the management of the company's affairs while he was the company's agent that reflect somewhat on his honesty. Shortly after assuming the management of the company's affairs I called upon Mr. Joseph T. Farrington, hardware merchant in this city, on business for the company.

307 In general conversation he asked me what the company was going to do about a claim of about $100 which Messrs. Sargent & Co., of New York, had against them for advertising purposes and for which he was personally responsible, having pledged himself to see that the same would be paid. I was unaware of the debt and asked for an explanation, which I received. To corroborate this explanation I found that Mr. Gustam had sold to Messrs. Sargent & Co. nippers amounting to several hundred dollars, and had agreed to pay them the sum of $100, to be deducted from the account, for an advertisement in their new book, which they were then getting out. He, however, collected the entire amount, through an oversight of Messrs. Sargent & Co., and when they discovered the error they tried to recover the money back from Mr. Gustam, but failed to do so. Mr. Gustam did not turn this $100 into the treasury of the company and has never done so since, and the company has been compelled to pay the debt.

In the latter part of 1880, while the company was in insolvency, Mr. Gustam obtained from Montgomery & Company a quantity of goods, agreeing to return the same or the money for the same in one week. He has never done so, and they have not seen him since. The company has received no benefit from this transaction, and Messrs. Montgomery & Co. consider that they have been swindled, and have stated to me personally that they consider him utterly untrustworthy. His own father came to me at my place of business to plead with me not to have him arrested, as he would see that he return the notes which he held of the company. He said, in presence of two others, that not only had his son ruined the company, but had ruined him and his family, and that the company had no business to have placed any confidence in him.

Answer objected to as hearsay and as irrelevant to this case.

308 10 Q. State if you recollect a transaction of Mr. Gustam, as agent of the company, with De Lisle & Ziegele in the sale of goods and the collection of money which reflects upon his honesty and truthfulness; and, if so, please state what it was.

Question objected to, except as to facts relating to Mr. Gustam's credibility and truthfulness as a witness.

A. In the month of April, 1881, just after the company resumed business, I received, as secretary of the company, an order for nippers from the above-mentioned firm, who do business in Germany. They stated that they had received a previous shipment from the company about four months before this date, but there had been some goods short, and as they had already paid for the goods through

Messrs. L. Von Hoffman & Co., bankers, of New York, upon presentation of bill of lading to them, that they therefore expected us to make this deficiency good. As secretary I was at a loss to understand this, as the company had never had any business with these people before nor shipped them any goods. I found upon investigation that the shipment had been made by Mr. Gustam, who had collected the money for the same, and they were billed at so low a price that Mr. Gustam could not have bought these goods from the trade, nor were they shipped from the factory at Milford, as the assignee was then in possession of the company's assets. I asked him for an explanation of this matter, which he refused to give, and have not been able to find out so as to state positive just where he did get the goods from, but do know that the company was responsible for the deficiency, which he has never made good.

10 Q. The money that Mr. Gustam collected for the goods
309 referred to in your last answer, did he turn that into the company or did he keep that himself?

Question objected to as irrelevant, and as there is nothing in previous answer of the witness that shows Gustam sold any of the company's goods, or that the transaction had anything to do with the company.

A. He did not turn the money into the company, as they were insolvent at the time, nor did he turn it in to the assignee, Mr. Henry S. Rogers, there being no entry of the amount or name on his cash book, which is in my posession.

Answer objected to, as the witness was not a party to the transaction nor an agent of either party to the transaction and testifies to what there is no possibility that he could have known of his own knowledge.

Q. 11. State whether or not Mr. Gustam admitted to you that he had received the money for these goods and kept it.

A. When I received this letter mentioned before I, the first time I saw him, asked him for information about the previous transaction with this house. He informed me that the order had come to him as general agent of the company by mail from Germany during the company's insolvency, and that he had executed the same and collected the money, as before stated.

12 Q. Referring now to Mr. Gustam's transaction with Montgomery & Co., state if you know whether Mr. Gustam sold the goods he obtained from them and whether he turned the money obtained for the goods into the company's treasury.

Question objected to as irrelevant.

310 A. I am unable to answer that question without referring to the books of the company.

13 Q. State whether or not, from what you know of Mr. Gustam of your own knowledge and from what you have heard about him from others, you would place any faith or credit in anything Mr.

Gustam might say to you, and whether you would believe him under oath.

A. I would only believe any statement that he might make to me if I were positively convinced in my own mind and by facts that the same were true. I have no hesitancy in saying that I would not believe Mr. Gustam under oath.

Cross-examination of witness by Mr. ELLIS:

14 X Q. You have mentioned a circumstance of Mr. Gustam's being arrested for stealing a ring from a woman. Was he tried for that in court?

A. I do not know.

15 X Q. Who was the woman?

A. I do not know.

16 X Q. How did you know he was arrested?

A. I had seen the same and had heard it spoken of.

17 X Q. How do you know Mr. Gustam was lodged in jail?

A. I was told so and heard it in conversation.

18 X Q. You have sworn positively to the fact that he was accused of stealing a diamond ring from a woman, and for which he was lodged in jail. Do you know anything of your own knowledge relating to that fact?

A. I know only that which has been told me by others.

19 X Q. Who told you?

A. I heard it from Mr. William Q. Judge, Mr. Thomas G. Hall, and Mr. J. F. Oliver.

20 X Q. Did they tell you who the woman was?

311 A. I did not ask.

21 X Q. Did they tell you without asking?

A. I do not recollect.

22 X Q. Perhaps I can refresh your memory. Do you remember boarding in the city of New York at the same house with Mr. Thomas G. Hall at the time this transaction was related to you?

A. I have never boarded in the city of New York.

23 X Q. Where were you living at the time this transaction was related to you?

A. In the city of Brooklyn.

24 X Q. Was Mr. Thomas G. Hall living in the same house?

A. He was not.

25 X Q. Was the woman who lost the ring living in the same house?

A. She was not.

26 X Q. Do you believe Mr. Gustam stole the ring you referred to?

A. As I am not positive and cannot swear that he did, I should be unwilling to say that he did steal it.

27 X Q. Have you not been told that he did not?

A. I do not recollect having heard anything further on the subject.

28 X Q. You have referred to some transactions in which the

books of the company are alleged to show some descrepancies to Mr. Gustam's disadvantage; can you produce those books?

A. I can.

29 X Q. Have you had any dealings with Mr. Gustam since he left the employ of the Interchangeable Tool Company?

A. I have not.

30 X Q. You mention some business transactions that you had with Mr. Gustam and a Mr. Brower, of Hackensack, New Jersey. Were you pecuniarily interested, by owning stock or otherwise,
312 with Mr. Gustam and Mr. Brower or in any company formed by them?

A. I never had any business transactions with Mr. Brower, am unacquainted with him, and had no interest whatsoever with any company with which he was connected in conjunction with Mr. Gustam.

31 X Q. Have you had any money transaction with Mr. Gustam since the first of January, 1880?

A. I have not.

32 X Q. Have you not lent him any money since that date?

A. I have not.

33 X Q. When did you last lend him any money?

A. I have never loaned Mr. Gustam any money personally.

34 X Q. Who, then, did you lend him any money for?

A. I have never lent him any money at all; I have loaned the Interchangeable Tool Company money during 1879.

35 X Q. Did you take Mr. Gustam's personal security for that or any loan?

A. I did not. I usually took the company's notes on demand, or for a short time, with the understanding that it was a temporary accommodation, to be returned as quickly as possible.

36 X Q. Were you then friendly and on good terms with Mr. Gustam?

A. I was acquainted with Mr. Gustam and knew him as an officer of the company.

37 X Q. Were you friendly and on good terms with Mr. Gustam immediately after he had left the employ of the company?

A. I have never borne any ill feeling or feeling of malice towards Mr. Gustam.

38 X Q. Did you ever know Mr. Gustam to take a false oath?

313 A. I have heard Mr. Gustam make assertions under oath which were not as he stated.

39 X Q. What were they?

A. I am unable to state what they were without referring to the records of an examination which took place in New Haven, Conn., in the fall of 1881, in which he gave evidence in a suit of D. L. Harris against Henry G. Thompson.

40 X Q. What were the statements and how do you know them to have been false?

A. They were statements that appertained to the warrant of ar-

rest that was taken out against him, and to get at the particulars of his statement I should have to refer to the records.

41 X Q. How do you know them to have been false?

A. I was thoroughly conversant and knew what was going on at that time, and knew that the facts as stated by him were not as they actually occurred.

42 X Q. Did you know this of your own knowledge, or did somebody tell you?

A. I was in constant communication with Mr. Hall by telegraph and letter daily, and knew all that was transpiring.

43 X Q. Did you know anything about the matter except by letter and telegraph?

A. I did.

44 X Q. State how.

A. Mr. Hall came to New York and usually returned by the next train after having seen me and consulted as to what course was best to pursue in that business.

45 X Q. Did you hear Mr. Gustam testify in the suit you have mentioned?

A. I did.

46 X Q. At New Haven?

A. At New Haven.

47 X Q. How much of his testimony did you hear?

314 A. I heard it all.

48 X Q. Now, please mention a single fact that he stated that you know of your own knowledge to be false.

A. It would be impossible for me to do so without going over the testimony, as it was very voluminous.

SAMUEL LEOPOLD.

Sworn to and subscribed before me this 25th day of May, 1882.

[L. S.] J. EDGAR BULL,

Notary Public, N. Y. County, N. Y.

JAMES F. OLIVER, a witness produced on behalf of Mr. Hall, being recalled and resworn, testified as follows:

1 Q. You are the James F. Oliver that has heretofore been examined in this case, are you not?

A. I am.

2 Q. In your previous testimony you referred to a model nipper made by Mr. Moses C. Johnson while he was in the employ of J. H. Jenks & Co., and you state that after Mr. Johnson came into the employ of the Interchangeable Tool Company he altered that model so as to make the gear connection between the two handles. I read to you from your previous examination questions and answers 24 to 27, inclusive.

Counsel reads the questions and answers referred to.

I now call your attention to the testimony of Moses C.

315 Johnson in this case. I read to you of Mr. Johnston's cross-examination questions and answers 262 to 264.

Counsel reads the questions and answers referred to.

Please state whether your recollection is clear as to the alteration of the Jenks model by Mr. Johnson after he came into the employ of the Interchangeable Tool Company.

A. My recollection is very clear. Johnson showed me the Jenks model himself as altered.

3 Q. Did the alteration in that model consist of dovetailing and brazing a piece of metal on the inside of the handles for the purpose of obtaining the necessary stock to make the gear connection in? And, if so, state what kind of metal was brazed or set in the handle for that purpose.

Objected to as leading.

A. Yes; my attention was called to the alteration, and I remarked upon the neatness with which the piece of steel or iron was dovetailed into the handle. The dovetailed piece was either steel or iron.

4 Q. Did you see it in the hands of Mr. Johnson?

A. Yes.

5 Q. And were you talking with him about it?

A. Yes.

6 Q. How often did you see it?

A. A number of times—probably ten or a dozen.

7 Q. And did you see that nipper together in a completed form after the pieces had been dovetailed into the handle, about which you have testified?

Objected to as leading.

A. Yes.

316 8 Q. State whether that was the first model nipper having the gearing between the handles that you ever saw at the works of the Interchangeable Tool Company.

Objected to as calling for evidence-in-chief.

A. It was the first complete model I had seen. I had previously seen a nipper having pins set in the handles to form the cog connection.

9 Q. State, if you know, whether the Jenks model nipper, as altered by Mr. Johnson, was made for the purpose of embodying in a practical form the idea of making a cog gearing between the handles, that had been previously illustrated in a rude way by pins set in the handles, so as to interlock and form a gearing between the handles.

Objected to as calling for evidence-in-chief and as asking the witness the purpose of experiments about which it has not been shown that he knows anything whatever.

A. I was informed by Mr. Johnson and Mr. Adams that it was made for that purpose, and as a model from which to make tools and gauges for the manufacture of the nipper as perfected by the cog connection.

10 Q. State, if you know, whether as a matter of fact the Jenks model nipper, as altered by Johnson, was used for the purpose of altering the dies of the company by and to make the templates after, to make the milling tools by.

A. Mr. Johnson had told me that he had made a duplicate handle and jaw like the model as altered for the use of the die-sinker in altering the dies. The model itself was to my certain
317 knowledge used by the various tool-makers as a guide to them in making all of the tools used in the company's shop. I saw it in use from day to day.

11 Q. Please to examine the model I now hand you, marked Johnson's Exhibit C, and state whether you ever saw that model at the works of the Interchangeable Tool Company.

A. I never saw this model before, to my recollection; I never saw it until now.

12 Q. State how often you were in the habit of visiting the shop of the Interchangeable Tool Company during the months of May, June, and July, 1879.

A. Two or three times a week.

13 Q. State whether it would have been possible for this skeleton model, Exhibit C, to have been used as the model nipper in the shop of the Interchangeable Tool Company to make the tools and nippers after without your having seen it.

A. I think not, because I was frequently there, watched the work with a great deal of interest, and saw the workmen repeatedly using the altered Jenks model as their guide.

14 Q. Please examine the model I now show you, marked Johnson Exhibit D, and state if you ever saw it at the works of the Interchangeable Tool Company.

A. I don't remember ever having seen it.

15 Q. Please to look at the model marked Hall Exhibit No. 20 and state if you recollect seeing it at the works of the Interchangeable Tool Company.

A. I don't remember seeing it at the company's shops. I have seen it at Peter Frasse & Co.'s store.

16 Q. State whether you are acquainted with Augustus Gustam.

A. I am.

17 Q. I read to you questions and answers 29 to 33, in-
318 clusive, of Mr. Gustam's examination-in-chief in this case:

Counsel reads questions and answers referred to.

Please to state whether Mr. Gustam stated, in your presence and in the presence of William Q. Judge and Mr. Hall, that he had directed Munn & Co. to change the drawing for the French patent, as stated in his testimony which I have read to you.

A. I have no recollection of his making such a statement, but I do remember that we had a conversation at the time mentioned with reference to our suspicions of Gustam's fairness to us, and also that the French patent had at that time been in our possession several months. It was in our safe before we removed to Milford. I am in error in saying we had it in the safe before we went to Milford.

18 Q. But you had the patent, as I understand you, in your possession at the time the conversation took place?

A. Yes.

19 Q. I read to you questions and answers 34 to 35, inclusive, of Mr. Gustam's testimony-in-chief.

Counsel reads questions and answers referred to.

State, if you know, whether the nipper directed to be patented in France by that resolution was the improved nipper with the cog gearing between the handles, or whether it was the old nipper without the cog gearing between the handles.

A. It was the improved nipper with the cog gearing. That is the nipper which the company was then making and selling.

20 Q. I read to you X Q.'s 103 to 108, inclusive, of Mr. Gustam's testimony.

Counsel reads questions and answers referred to.

319 Please to state what, if anything, you know of that transaction.

A. Shortly before Mr. Hall swore out the warrant for his arrest Gustam told me that he had filled out and used for his own personal use two of the notes which had been given him for use in settling with the company's creditors, and that their amount was about $1,200, which sum we might charge to him if we chose in settling his account with the company. I asked him why he had done it. He said he wanted money. I then told him that such conduct was, in my opinion, good ground for his arrest, and left him.

21 Q. Did Mr. Gustam at that time claim that the company was indebted to him?

A. He did so claim.

22 Q. Was the company indebted to him?

A. His personal account on the company's books showed a balance in his favor, but he had failed to account for a large amount of goods which had been shipped to him as the company's agent. He had also guaranteed the account of one of the company's debtors, which account proved to be worthless, leaving him, in fact, in debt to the company.

23 Q. At the time he told you he embezzled these notes, as I understand you?

Question objected to as assuming that Mr. Gustam embezzled any notes, and as leading.

A. Yes.

24 Q. State, if you know, whether or not during the time you have been connected with the Interchangeable Tool Company Mr. Thomas G. Hall had had the entire confidence of the directors of the company.

A. Mr. Hall has always had the entire confidence of the directors of the company.

320 25 Q. State whether or not the change in the nipper and in the dies of the nipper was made by the company upon the

recommendation of Mr. Hall—I mean, of course, the change from the nipper without the gear between the handles to the nipper with the gear between the handles.

A. It was so made.

26 Q. State, if you recollect, whether there was any other change made in the Jenks model nipper than that of putting the gearing between the handles.

A. I don't remember any.

27 Q. How long have you been acquainted with Augustus Gustam?

A. About seven years.

28 Q. State, if you know, what Mr. Gustam's reputation is for truth and veracity.

A. His reputation for truth and veracity is very bad.

29 Q. State whether or not, upon what you know of Mr. Gustam and upon his reputation for truth and veracity, you would believe any statement he might make under oath.

A. I would place no confidence in his unsupported statement, whether under oath or not.

30 Q. State whether or not, upon what you know of Mr. Gustam, he is an intelligent, ingenious, and unscrupulous fabricator.

A. I regard Mr. Gustam as a most reckless and unscrupulous fabricator.

Cross-examination of witness by Mr. ELLIS:

31 X Q. When Mr. Gustam told you, as you have testified, that he had used for his personal benefit two of the notes given him by the company did you believe him?

A. I believed him capable of having done it.

32 X Q. Question repeated.

321 A. I didn't know whether to believe him or not, but believed him capable of having so used them.

33 X Q. Can you not give a direct answer to my question?

A. I have given a direct answer. That was the condition of my mind with regard to Mr. Gustam's assertions.

34 X Q. Did you not repeat the statement of Mr. Gustam to other members of the company as though you did believe him?

A. I simply repeated Mr. Gustam's statements to the other officers of the company.

35 X Q. Did not you and other members of the company believe him sufficiently to endeavor to cause his arrest?

A. Yes; we did, preferring to err on the right side if we erred at all.

36 X Q. Did you ever know Mr. Gustam to take a false oath?

A. Never heard him take any oath.

37 X Q. Did you ever hear him make a false statement under oath?

A. Never heard him make any statement under oath.

38 X Q. Were not the one hundred notes that were given Mr. Gustam by the company all returned?

A. I believe they were, after his arrest or attempted arrest.

39 X Q. Were any of them filled out for his own benefit?

A. I don't know.

40 X Q. Wouldn't you have known it if there had been?

A. No; I have never seen the notes.

41 X Q. Were you not treasurer of the company at the time?

A. No.

42 X Q. Do you know what became of the notes finally?

322 A. Not of my own knowledge. I understand that they are in the possession of the present treasurer, Mr. Leopold.

43 X Q. You say that Mr. Hall has always had the entire confidence of the directors of the company. Do you mean by that that the directors have always placed entire confidence in his skill and management of the mechanical operations of the company?

A. They have, with this exception: Mr. Hall not being a practical tool-maker, they did not consider him, nor did he consider himself, competent to superintend, without more skilled assistants, the making of mills, gauges, etc.

44 X Q. Are you quite sure that the French patent, about which you have testified, was in the possession of the company at the time of the meeting at which Messrs. Hall, Judge, Gustam, and yourself were present—I mean the meeting which has been spoken of in your direct examination?

A. I am quite positive that it was and had been for some time.

45 X Q. Are you any more certain of this than you were that it was in the safe before the company moved to Milford until your attention was called to the date of the patent?

A. I am, because I can remember circumstances associated with it and having examined the patent and shown it to Mr. Rogers before that time.

46 X Q. Is there on the original patent or its envelope any memorandum of the date upon which it was received by the company?

A. I can't say; I don't know.

47 X Q. Is there, to your knowledge, any written memorandum of the date on which the French patent was received?

A. No.

J. F. OLIVER.

Subscribed and sworn to before me this 25th day of May, 1882.

[L. S.] J. EDGAR BULL,

Notary Public (132), *N. Y. Co., N. Y.*

Examination adjourned until 10 o'clock a. m., May 26, 1882.

323 NEW YORK, *May* 26, 1882—10 o'clock a. m.

Parties met pursuant to adjournment.

Present: Counsel as before.

JOHN F. WOODWARD, a witness produced on behalf of Hall, being duly sworn, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is John F. Woodward; my age is thirty-six years; I reside 339 East Forty-first street, New York city; my occupation is tool-maker.

2 Q. State whether you are in the employ of the Interchangeable Tool Company; and, if yea, state how long you have been in the employ of that company.

A. I am. I have been employed by said company seven months; went to work for them on the 21st of October, 1881.

3 Q. State whether you are acquainted with James M. Adams.

A. I am.

4 Q. State how long you have known Mr. Adams.

A. For about five years at least.

5 Q. State whether you have been employed in the works with James M. Adams in Brooklyn, New York.

A. I have.

6 Q. Please to state the name of the works in which you were employed with Mr. Adams in Brooklyn, and state when you were employed there with him.

A. The name of the works was Mr. Bliss' Press and Die Works. I was employed there about seven or eight months previous to the time I went to work for the Interchangeable Tool Company.

7 Q. Did you leave the employ of Mr. Bliss to go to work for the Interchangeable Tool Company?

A. I did

324 8 Q. At the works of the Interchangeable Tool Company are you employed in the manufacture of what is known as the Hall nipper?

A. I am.

9 Q. Please to examine the model I now show you, marked Hall's Exhibit 10, and state whether you recognize it as being the same style of nipper manufactured at the Interchangeable Tool Company's works.

Question objected to as leading.

A. I should say it was, to all appearances.

10 Q. Please to state whether the model I now show you, marked Johnson's Exhibit C, embraces the parts and combination of parts of the Hall nipper manufactured by the Interchangeable Tool Company.

A. Yes; it does, all but the side plates.

11 Q. Please to state whether you had any conversation with Mr. Adams about the invention of that nipper; and, if so, please state what it was and when it was.

A. I had a conversation with Mr. Adams a few days before I went to work for the Interchangeable Tool Company. It was about a change in the nipper that Johnson made for him.

12 Q. Did he state in that conversation what the change was?

A. The change was in the gearing.

13 Q. What did he say about the gearing?

A. He showed me the nipper, and I can't remember just what the nipper was he showed me. When I told him that I was going to work for them he said they had no right to build them.

14 Q. Did he say why they had no right to build them?

A. After he said it he went to his chest and showed me the
325 change he had made. I understood by that that it was on account of the change he had made in the nipper.

15 Q. What change did he say he had made in the nipper?

A. The change was in the gearing, but just what the change was I cannot say, as I don't know what the nipper was before. I didn't pay very much attention to it at the time, because it was in working hours.

16 Q. Did the nipper he showed you have gearing between the handles?

A. I wouldn't say positively.

17 Q. What change in the gearing did Mr. Adams claim to have made?

A. It was a change where the gearing is there. I don't know which he showed me.

18 Q. Whatever the change was did he say that he had made the change, or that Moses C. Johnson had made it?

A. He said that he had Johnson make the change. Those are the words he used.

Question and answer objected to, as it has not been shown that either the nippers shown witness or the change that had been made in them have any bearing upon this case.

19 Q. Was the nipper that Mr. Adams showed you like the nipper Hall's Exhibit 10?

Question objected to as leading and as suggesting to witness what was probably not the case.

A. I don't know what the nipper was he showed, but I know it could not be like that. I think the nipper he showed me was a skeleton nipper, but I won't say anything I am not positive about.

326 20 Q. Please to look at this skeleton nipper, marked Johnson's Exhibit D, and state whether that is like the skeleton nipper you think he showed you.

A. Well, it looks very much as if I had seen it before. If I saw it before it must have been at that time, as I have never seen it since until now.

21 Q. State whether or not that skeleton nipper calls to your mind the skeleton nipper you think Mr. Adams showed you at the interview you have referred to.

A. I wouldn't say; it came in my memory I had seen it before the minute I saw it.

22 Q. And was it the cog gearing between the two handles that Mr. Adams referred to as the improvement he had made upon the nipper? State the best of your recollection about it.

Question objected to as leading and suggesting to witness what Mr. Adams did say.

A. It was; it was the gearing between the two handles that he said he had made an alteration in.

J. F. WOODWARD.

Subscribed and sworn to before me this 26th day of May, 1882.
[L. S.] J. EDGAR BULL,
Notary Public (132), *N. Y. Co., N. Y.*

327 CHARLES F. FRASSE, a witness produced on behalf of Hall, being duly sworn, testifies as follows:

1 Q. State your name, age, residence, and occupation.

A. My name is Charles F. Frasse; am 25 years of age; I reside at 64 East Fifty-third street, New York city; am clerk for hardware merchant.

2 Q. Please to state for what hardware merchant you are clerk.

A. Peter A. Frasse & Co.

3 Q. State whether the firm of Peter A. Frasse & Co. were ever the agents of the Interchangeable Tool Company for the sale of their nipper; and, if yea, please to state during what period of time that firm was the agent of said company.

A. We were the sole agents from the first of their production, from May until November, 1879, as near as I can recollect.

4 Q. State, as near as you can recollect, when it was that the company supplied you with the first lot of their nippers.

A. I think it was in June, 1879; but with reference to the books I could fix the date positively.

5 Q. Please to examine the model, Hall's Exhibit No. 10, and state whether or not it is like the nipper furnished you by the Interchangeable Tool Company.

A. It is exactly like those received from them, with the exception of there being black handles.

6 Q. State, as near as you can recollect, the number of those nippers delivered to you by the Interchangeable Tool Company during the time your firm was agent for it.

Question objected to as evidence-in-chief.

A. I should judge about seventy-five gross.

328 7 Q. State, if you recollect, whether your firm ever had in its possession the nipper I now show you, marked Hall's Exhibit 20.

A. Yes.

8 Q. State, as near as you can recollect, when it was that that nipper was delivered to your firm.

A. In September, 1879.

9 Q. State, if you know, where it was made and by whom it was delivered to your firm.

A. It was made at the Interchangeable Tool Company's factory and delivered to Peter A. Frasse & Co. by Mr. Gustam.

10 Q. State, if you recollect, how long that nipper was in the possession of Peter A. Frasse & Co.

A. It never went out of our possession until delivered to Mr. Hall, about January, 1882.

11 Q. Are you acquainted with Augustus Gustam?

A. Intimately.

12 Q. How long have you known Mr. Gustam?

A. Since May, 1879.

13 Q. What is Mr. Gustam's reputation for truth and veracity among those who know him?

A. Not trustworthy.

14 Q. Is Mr. Gustam's reputation for truth and veracity so bad that you would not believe him under oath?

A. I can't say as I would believe him.

Cross-examination of witness by Mr. ELLIS:

15 X Q. Did you ever have any other nippers from the Interchangeable Tool Company of the same construction as Exhibit No. 20?

A. Yes, except their being hard.

16 X Q. How many in all, and what size?

A. About 10 gross I should judge; seven inch.

17 X Q. When did you receive those?

A. I couldn't remember the date; but a long time after the smaller nippers.

329 18 X Q. Did the 10 gross you refer to have the gear connection formed by pins between the handles like Exhibit 20?

A. Yes.

19 X Q. Was that particular pair of nippers, marked Exhibit 20, delivered to you for any especial purpose? If yea, state what it was.

A. It was to put as an exhibit in the American Institute Fair and also to enable us to sell from.

20 X Q. Did you ever know Mr. A. Gustam to swear falsely?

A. No.

21 X Q. Do you think that Mr. A. Gustam's character is such that he would knowingly commit the crime of perjury?

A. That would be hard to say in his business transactions, but for myself I wouldn't believe him.

22 X Q. If he were sworn as a witness, do you believe he would state what he knew to be false, as a witness?

A. That I couldn't say.

23 X Q. Cannot you give your opinion from a knowledge of Mr. Gustam?

A. It would be impossible for me to tell what he would do or how he would act in a court of law.

Redirect examination by Mr. BROADNAX:

24 Q. In your cross-examination counsel asked you whether the 10 gross of large nippers referred to by you as having been received from the Interchangeable Tool Company had the gearing between the handles formed by pins. Now, I want to call your attention especially to the gearing between these handles and ask you to state whether the gearing of the 10 gross was made with pins or whether it was cut in the solid metal of the handle like it is in Exhibit 10.

330 A. The gearing of the 10 gross were cut in the solid handle and the sample, Hall Exhibit 20, was the only one with the pins that I remember.

CHAS. F. FRASSE.

Subscribed and sworn to before me this 26th day of May, 1882.

[L. S.] J. EDGAR BULL,
Notary Public, New York Co., N. Y.

THOMAS G. HALL, a witness produced on his own behalf, being recalled and resworn, in answer to interrogatories propounded by Mr. BROADNAX, testified as follows:

1 Q. State whether you have heard or read the testimony of Moses C. Johnson, Augustus Gustam, E. A. Whittelsey, James M. Adams, and Henry G. Thompson, given in this interference.

A. I have.

2 Q. During the time that Mr. James M. Adams was foreman of the shop of the Interchangeable Tool Company, about how often did you visit the shop and observe the progress and character of the work that was being done there?

Objected to, except as to the number of times he visited the shop.

A. To the best of my recollection I was in there pretty much every day. I don't recall an absence of more than two consecutive days.

3 Q. State whether or not during the period covered by
331 my last question you were constantly and personally cognizant of the work that was being done at the shop.

A. I don't recall a single period when I failed to know what was going on in the shop. If I was absent for any length of time I made inquiries as to what had been done in my absence.

4 Q. State, as near as you can recollect, the longest period of time that you were absent or omitted to visit the works of the Interchangeable Tool Company during the time that Mr. Adams was foreman there.

A. Certainly not more than two or three days. I occasionally went to Hartford on business of the company, which would account for my longest absence.

5 Q. Please to examine the model Johnson's Exhibit C and state

whether or not you ever saw that model at the works of the Interchangeable Tool Company.

A. In the first place, the exhibit is in no sense a model. I had never seen it until the time it was presented at this interference.

6 Q. State if you recollect of having seen any parts of Exhibit C at the works of the Interchangeable Tool Company; and, if so, which of the parts did you see there?

A. To my recollection I cannot recall any of the parts, although I may possibly have seen the side plate, as there were a number similar in the waste box, which had been condemned on account of inaccuracy.

7 Q. State whether or not the templates for the milling tools used by the Interchangeable Tool Company in the manufacture of their No. 2 nipper were made or could have been made from the jaws of the so-called model C.

Objected to, as it has not been shown that the witness is an expert tool-maker.

332 A. They were not, to the best of my recollection and belief, and they could not have been made from that exhibit, in my opinion.

8 Q. Please to examine the templates I now show you, marked Hall's Exhibit "Templates," and state whether or not they are the templates by which the jaws of the No. 2 nipper of the Interchangeable Tool Company is made.

A. They are.

9 Q. State whether or not you have tried those templates upon the jaws of the so-called model C; and, if yea, state whether the templates fit the jaws of that model.

A. I have tried them and they do not fit.

10 Q. If those templates had been made from the jaws of that model would they fit it exactly?

A. They should, and to be of any service they must do so.

11 Q. State, if you know, by the jaws of what model nipper those templates were made.

A. To the best of my knowledge and belief, they were made from what was known as the Jenks model nipper.

12 Q. Are those templates the original templates, and the only only ones that the Interchangeable Tool Company has had made by which to test and to make the jaws of the No. 2 nipper?

A. To the best of my knowledge and belief, they are the only templates for that size of nipper that I have ever seen or heard of, directly or indirectly.

13 Q. State whether or not it is the practice of the Interchangeable Tool Company to test the jaws of the No. 2 nipper now, at this time, by these templates—I mean, to make the jaws from these templates.

A. It is.

14 Q. State whether or not it is the practice of the Interchange-

able Tool Company to supply or replace new jaws of the
333 nippers heretofore made by the company, of that size, with jaws that are now made by the company from those templates.

A. It is of daily occurrence.

15 Q. State whether or not in case the jaws of the No. 2 nipper had been made originally from the jaws of the so-called model C, the jaws made now by the company after these templates could be put into any old nipper out of which the jaw was broken or disabled.

A. They could not, in my opinion, and from practical knowledge of the method of manufacture they would not answer the purpose. I know they would not.

16 Q. State whether or not that at the time of the adoption of the improvement in the nipper embraced in this controversy it was a part of the plan and purpose of the Interchangeable Tool Company to make all of the different parts of the nipper to conform exactly to a given gauge or template, so that at any time in the future the company could supply any part of any nipper that might be broken or disabled, and so that the new part would exactly fit and take the place of the broken part of the disabled nipper, and whether it has been the practice of the company ever since to make the several parts of their nipper.

Objected to as irrelevant and leading.

A. It was the principal object of the company, in which they have spent large sums of money in accomplishing. They have strictly adhered to it ever since. In my opinion, it is the very soul of the business, the supplying of these extra parts.

17 Q. State whether or not you have now any demand for such extra parts and whether you are supplying them.

A. We have a large, steady, and constantly increasing de-
334 mand from foreign countries as well as the United States, wherever we have sold the nippers.

18 Q. State whether or not since the adoption of the improvement in the nipper embraced in this controversy you have devoted yourself during your entire time to mastering the manufacture of the nipper and of the tools and implements necessary to carrying on the business and whether you are thoroughly familiar with the business in all its parts.

A. I cannot say that I have devoted my entire time during the entire period mentioned, but I have devoted sufficient time to master all the details of the business. There was a time when I had other business on my hands for a limited period. During the period mentioned in the question I exercised supervision over the business, as I have done since its organization.

19 Q. Referring now to the Jenks model nipper. After hearing the testimony of Johnson, Adams, and Whittelsey can you state positively that that nipper was altered by Johnson after he came into the employ of the Interchangeable Tool Company, and which alteration consisted of dovetailing or brazing a piece of metal on

the inside of the handle and of forming a cog connection between the two handles in the piece of metal so brazed or dovetailed on?

A. I positively assert that such alteration was made. I saw it when completed.

20 Q. And can you assert positively that your No. 2 nipper was made from that model?

A. I can and do; more especially as all our tools, gauges, mills, dies—everything appertaining to the same, including the fixtures—are made to correspond in every particular to the thousandth part of an inch to that nipper.

Question and answer objected to as evidence-in-chief.

335 21 Q. State whether or not there was any other alteration made in the Jenks model by Johnson after he came into the employ of the Interchangeable Tool Company besides that of putting the cog connection between the handles.

A. The only change that was made — upon the Jenks model, whether by Johnson or any other person: I do not mean upon the model itself; I refer simply to a change in the design of the side plate, making it more oval on the top, which had no effect upon the tools except the punch to punch the plates out.

22 Q. In the Jenks model nipper was the spring and the lip over the upper end of the spring the same as they are in the nipper you are now manufacturing?

A. It was.

Question and answer objected to as evidence-in-chief.

23 Q. In the Jenks model nipper was there an adjusting stop-screw in one of the handles to regulate or rather to prevent the cutting edges of the jaws from slamming together?

A. I think not.

24 Q. Then, as I understand you, there was present in the Jenks model nipper all of the parts and combination of parts that is present in the nipper as it is now manufactured, with the exception of the stop-screw in one of the handles and the cog gearing between the handles.

Objected to as suggesting to witness what he is expected to testify to and as an endeavor to correct and supplement the evidence-in-chief.

336 A. That is correct, to the best of my recollection and belief.

25 Q. In the Jenks model nipper, before the alteration thereof by Johnson, please to state whether or not there was present all of the parts and combination of parts that is embraced in the so-called model Exhibit C, with the exception of the cog connection between the handles.

Objected to as leading and suggesting the answer and as calling for evidence-in-chief.

A. All of the parts and combination of parts were present, with the single exception noted.

26 Q. From what you know of the conditions necessary to nablee the die-sinker to make the dies in which the drop forgings of the nipper No. 2 as originally made, please to state whether or not it would be possible for the die-sinker to make the dies without the several parts of the model nipper.

A. From my considerable experience with the Colt's Patent Fire-Arm Company, who have made all the dies that the Interchangeable Tool Company have ever used, I have the very best reason to know that models are absolutely requisite for making such dies, and in every instance I am positive models have been furnished for the purpose.

27 Q. Can you state positively that the jaws and handles of the Jenks model nipper or duplicates thereof were furnished to the Colt's Patent Fire-Arm Company to enable that company to make the dies for your No. 2 nipper?

Objected to as leading and suggesting the answer to witness.

337 A. I am positive they were furnished to them, and I am strengthened in that belief by two reasons: First, I think I took them up the Colt's Patent Fire-Arm Company myself, but I am not positive about that; the other reason is that the Colt's Arms Company have always refused or declined to make any change without the model of the work required being furnished them.

28 Q. State, if you please, whether the Jenks model nipper, after it was altered by Johnson, as you have testified, was of the size of your No. 2 nipper.

A. It was.

29 Q. State, if you please, by what mills and under what condition of such mills the jaws of the skeleton model C have been milled.

Objected to, as the model C was not milled under any mills, but made with the file, as testified to and as it shows for itself.

A. My belief is that these jaws were made from forgings made in the dies made at Colt's Patent Fire-Arm Company to correspond with the change in the model, and that they have been milled by a set of mills made after the templates, Hall's Exhibit "Templates," said mills being in a state of expansion; that these jaws have been used for experimental purposes in adjusting the mills so as to correspond exactly with the templates; not being exactly like the templates is accounted for for the reason that they have not been milled down to gauge.

30 Q. Please to explain what you mean when you say that the mills were in a state of expansion when these jaws were milled.

A. The mills are made in sections. They are expanded by having paper washers put in between the separate mills, and contracted by withdrawing the washers; I mean that washers were between these mills when the milling was done.

338 31 Q. In answer to Q. 29 you say that these jaws have been used for experimental purposes in adjusting the mills; please explain what you mean by that.

A. In the process of adjustment it is the custom to take jaw forgings and run them under the mills until they are brought down to gauge. Those that are imperfect, having undergone this experimental process, are thrown into the waste box.

32 Q. Please to state whether or not there was stock enough in the jaw forgings of the No. 2 nipper before the alteration of the dies to mill up or work up to the form of the jaws of the skeleton model, Exhibit C.

A. There was a marked deficiency. It was for that reason that new dies were made.

33 Q. Do you mean by that that the jaws of Exhibit C could not have been made out of the forging for the No. 2 nipper before the alteration of the dies?

Objected to as leading.

A. That is precisely what I mean.

34 Q. State, if you know, when it was that the Interchangeable Tool Company gave the order to Colt's Patent Fire-Arm Company to alter the dies.

A. As near as I can recollect, without referring to the records of the company, it was about the latter part of May or the first day of June, 1879.

Answer objected to, as the record is the best evidence.

35 Q. Please to examine the model, Johnson Exhibit D, and state when and where you first saw that so-called model.

A. The first time I saw the so-called model referred to was
339 in the city of New Haven, on the date it was put in evidence in this case, several months ago.

36 Q. Please examine this model, marked Hall's Exhibit No. 16, and state if you know where, when, and by whom it was made.

A. I think I had a hand in making that nipper, with the exception of the pins inserted in the handles. It was made some time in the latter part of 1878 or the early part of 1879. I think I found it in the scrap-box at Milford. I am uncertain where it was made. It might have been made in Harlem, but my impression is it was in Hudson street, in the early part of 1879.

37 Q. State, if you know, whether any part of that nipper was made in milling machine.

A. No part of it was so made, I am positive.

38 Q. State, if you know, who put the pins in the handles of that nipper to form a cog connection between the handles.

Objected to as evidence-in-chief.

A. I do not know positively, but I think I heard Mr. Adams say he did it.

39 Q. State, if you know, when they were put in.

A. I think that Mr. Adams also remarked, at the time mentioned above, that it was the early part of May, 1879.

40 Q. State upon whose suggestion or direction those pins were put in.

Objected to as evidence-in-chief.

A. Regarding this particular nipper, I do not know.

41 Q. State upon whose direction the Jenks model nipper was altered by Mr. Johnson, after he came in the employ of the Interchangeable Tool Company, so as to make the cog connection between the handles.

340 A. The instructions to Mr. Johnson were given by Mr. Adams, I think, directly; he was the foreman of the shop.

42 Q. Who directed Mr. Adams to have it done?

A. My impression is that the direction given to Mr. Adams was given in a sort of general way, while Mr. Gustam and myself were present. I refer now particularly to the alteration of the Jenks model. I think I did the talking.

43 Q. State how long you have known Augustus Gustam, if you do know him.

A. I have known Mr. Gustam about twelve years, I should say.

44 Q. State, if you know, what Mr. Gustam's reputation is, among those who know him, for truth and veracity.

A. His reputation among people of my acquaintance who know him is bad.

45 Q. State, if you know, what his habits are now as to sobriety, industry, and general integrity, and what his occupation is now.

Objected to as irrelevant.

A. As to sobriety, he is an intemperate man, drinking very often to excess. As to industry, I should say he was industrious. As to his general integrity, he is a dishonorable man, I think, and also dishonest, to my certain knowledge. I do not know what his occupation is at present.

46 Q. State, if you know, whether Mr. Gustam's habits and character have been improving or deteriorating the past five or six years of his life.

A. The past two years of his life, I think, his habits have been deteriorating. About five years ago he was doing well, to all appearances.

47 Q. Since that time, as I understand you, he has been running down?

341 A. He has.

48 Q. From what you know of Mr. Gustam, of your own knowledge and from what you have heard others say of him, is his reputation for truth and honesty so bad that you would not place any credit on anything he said under oath unless his statement was supported by facts and circumstances within your own knowledge?

Objected to as suggesting to the witness the degree of credibility of Mr. Gustam as a witness.

A. It is.

Cross-examination of witness by Mr. ELLIS:

49 X Q. Would you have believed Mr. Gustam on oath two years ago?

A. I think so.

50 X Q. Would you have believed Mr. Gustam on oath one year ago?

A. I would not.

51 Q. What occurred between those two times to change your opinion of his veracity?

A. I think about two years ago, possibly a little longer, Mr. Gustam came to me and told me that he owed a year's rent for the house in which he lived, and that the landlord, Mr. Voorhees, had told him if a settlement was not immediately made that he would put him out of the house. I remarked to him, as near as I can recollect, that that was a pretty bad thing to happen to him—*i. e.*, to be put out of his house. I asked him also why he had allowed the rent to accumulate to such an extent, as he has been in receipt of a much larger income than I had, and that he should have
342 paid as he went along. He stated to me that he had an old matter hanging over his head that kept him very short of money, or words to that effect. He concluded by asking me if I would endorse his note at six months for the amount, with interest, and also promised me to take care of the note when it became due, so that I would not have any trouble about it; to all of which he agreed and swore "as God was his judge," those were the very words he made use of, that I should never see or hear of that note again until he brought it to me cancelled. I endorsed the note as he requested and thought no more about the matter; in fact, it slipped from my mind until I received the legal papers notifying me that I was sued upon the note. I immediately sought out Mr. Gustam and told him of the facts. He remarked that he had received papers to a like effect. To quote his exact remarks, he said, "Let him go to hell, just as I am going to let him. He can't collect a cent." I was sued upon the note, judgment obtained, and compelled to pay it. He afterwards told, when being reproved for treating me so by William Q. Judge and J. F. Oliver, that I was a fool for having paid the note. That is about all of that transaction.

Examination of witnesses adjourned until 10 o'clock a. m., May 26th, 1882.

343 Cross-examination of Mr. HALL continued by Mr. ELLIS:

52 X Q. Was this occurrence before or after you gave Mr. Gustam the 100 blank notes signed by yourself to be used in settling the debts of the company?

A. Before.

53 X Q. Who made oath to the statement upon which the warrant of arrest against Mr. Gustam was issued for alleged appropriation of two of said notes?

A. To the best of my recollection, the warrant was not issued under oath. I had the warrant issued, but do not think that it was sworn to.

54 X Q. In what form was the complaint made?

A. As near as I can recollect, Judge Stoddard, the company's

counsel, prepared the papers, which were approved and signed by a grand juryman, Tibbals by name. Those papers were after handed to Deputy Sheriff Miles. I don't recall going before a notary in the matter at all. I think that the custom is for the grand juryman to swear, if any one, on information.

55 X Q. Do you not remember taking an oath before Mr. Stoddard that the facts stated in the information or complaint were correct, to the best of your knowledge and belief?

A. I don't remember taking an oath on the subject at all. I probably made a statement to that effect.

56 X Q. Did you sign that statement?

A. Probably did.

57 X Q. Did you have any knowledge or information for making such a statement except the word of Mr. Gustam?

A. I did.

58 X Q. What other knowledge or information did you have?

344 A. I received an official statement from the secretary of the Interchangeable Tool Co., Samuel Leopold, to that effect, I think, with a recommendation for me to see Mr. Gustam and, if possible, obtain said notes from him. I also received a letter from J. F. Oliver, a director of the company, informing me of Mr. Gustam's admission in reference to said notes. Acting upon such information, I sent word to Mr. Gustam by letter, requesting him to come and see me immediately. The latter circumstances occurred in Milford. He paid no attention to the letter. When I went to the hotel to dinner he was on the piazza of the hotel. I asked him about the notes. He confessed to me that he had made use of the two notes mentioned. I asked him why he had done so. He said his necessities compelled him to do so, as he was entirely out of money and his creditors very clamorous. I told him that did not justify him in committing a crime of that kind, and gave him, I think, a number of days' grace in which to return the notes; failing to do so, I would proceed against him criminally in the premises. He seemed very much crestfallen, but made no reply. He did not return the notes within the time specified, and by direction of the board of directors of the Interchangeable Tool Company I proceeded against him.

59 X Q. From what you have subsequently known, had he in fact at that time used two of the company's notes for his own benefit?

A. My opinion is at the present time that he had only used one of them.

60 X Q. What was the date, as near as you can recollect, of the interview with Mr. Gustam that you have just mentioned?

A. As near as I can recollect, it was in July, 1881. I am not at all positive in reference to the date.

345 61 X Q. Are you certain that it was after December 22, 1880?

A. I am.

62 X Q. Who made the templates for the jaws of the No. 2 nippers that have been introduced in evidence—Exhibit "Templates?"

A. To the best of my knowledge and belief, Mr. E. A. Whittelsey.

63 X Q. Did not Moses C. Johnson also make templates for this size of nipper?

A. I have reason to believe that he did. I saw him, I think, make templates for the handle.

64 X Q. Where are they now?

A. I do not know.

65 X Q. Did he not also make templates for the jaws of the No. 2 nipper?

A. Not to my recollection.

66 X Q. Did Whittlesey make any templates for the handles?

A. Don't remember having seen him do so.

67 X Q. Are there now in the possession of the company any templates for the handles of the No. 2 nipper?

A. I think there are.

68 X Q. Who made them?

A. Cannot say at this time.

69 X Q. How long have you had them?

A. As far as I am able to state, they are the same templates we have had in continuous use since the 1st of June, 1879. I do not remember of any templates relating to the No. 2 nipper having been made since July, 1879.

70 X Q. Are the handles of the No. 2 nipper, as you now make them, made to fit the templates that you have mentioned in your previous answer?

A. They are. If otherwise, they would disarrange our business.

71 X Q. During the time from May, 1879, to February, 1880, did you have any mechanical supervision of the manufacture of
346 nippers by the Interchangeable Tool Company?

A. My supervision during the period mentioned and ever during my connection with the Interchangeable Tool Company has been general in every department of the business.

72 X Q. What did you understand was the change in your position by the appointment of Mr. Adams as superintendent?

A. The change, as I understand it, was for the reason that I could not devote my entire time continuously during the period mentioned above. I had other business on my hands, and the company could scarcely afford to pay the salaries that they had been paying.

73 X Q. Were you superintendent, in fact, of any part of the mechanical operations during the time between May, 1879, and February, 1880?

A. I occupied the same position then as now, when I have entire charge of the factory. There has always been a practical foreman of the factory, sometimes called a superintendent.

74 X Q. Referring to the Jenks' model, has there been any other completed model of the No. 2 nipper made in the shop of the Interchangeable Tool Company since that was made, to your knowledge?

A. There has not been any made sufficiently accurate to be designated as or used as a model.

Cross-examination closed.

75 Q. I read to you Q. and A. 5 to 10, inclusive, of testimony of Henry G. Thompson in this case.

Counsel reads the Q.'s and A.'s referred to.

Please state what answer, if any, you have to make to the statements I have read to you.

Objected to as introducing new matter on the redirect examination.

347 A. My answer is in general that a portion of Mr. Thompson's testimony is correct and a portion is incorrect. In regard to answer to Q. 5, I made no such statement to Mr. Thompson. I did state to him that the company had voted to increase their capital stock from $50,000 to $75,000, but made no statement that application had been made for the same at a premium of two and a half to five per cent. Probably made the third statement; would reiterate it at the present time. I believe I made the answer to the fourth and fifth as Mr. Thompson testifies. As to the sixth point, referring to the company's patents, Mr. Thompson remarked, as nearly as I can recollect at the present time, that he could satisfy himself on these points by referring to the Patent Office records. Mr. Thompson's answer to questions 6 and 7 is correct. As to Q. 8, I notified Mr. Thomas H. Thompson, who was our superintendent at the time, to permit no meddling with the business by Mr. Henry G. Thompson. He certainly made himself too familiar, if possible, with the business.

As to the fourth statement, in answer to Q. 9, I would state: Mr. Thompson handed me a written statement of an estimate of the cost of the company's nippers. He estimated the cost in that statement at less than 28 cents per nipper. I have a copy of that statement which I myself made and which I will swear to be a correct copy of the one Mr. Thompson wrote personally. I showed the original to Messrs. Oliver, Judge, and Gustam, and finally mailed the same to Mr. Gustam, instructing him to preserve it for future reference, if necessary. I do not know where the original is, but can procure the copy. In regard to the latter part of said answer I will say that the company did settle their indebtedness to their creditor at fifty cents on the dollar with unendorsed notes while the property
348 was mortgaged, and have since paid said notes as they fell due, and confidently hope to pay the balance at maturity. As to the sixth and seventh statements I presume that is a mere matter of opinion.

In answer to Q. 10, the result communicated to me by Mr. Thompson was in the form of the estimate above mentioned.

THOMAS G. HALL.

Subscribed and sworn to before me this 27th day of May, A. D. 1882.

[L. S.]

J. EDGAR BULL,
Notary Public, N. Y. Co., N. Y.

Counsel for Johnson introduces in evidence, as agreed after the 101st question of Mr. A. Gustam, a certified copy of the agreement mentioned in the 98th answer of Mr. Gustam, marked Johnson's Exhibit F.

AMOS BROADNAX, a witness produced on behalf of Hall, being duly sworn, deposes and says that he prepared an application for a patent for Thomas G. Hall's nipper at the request of William Q. Judge; that Hall's Exhibit No. 14 is the specification and Hall's Exhibit 15 is the drawing making parts of that application, and that said application was prepared some time in the month of July, 1880; the exact date of the preparation I cannot fix, but the application was not filed for want of fees.

AMOS BROADNAX.

Sworn to and subscribed before me this 27th day of May, A. D. 1882.

[L. S.] J. EDGAR BULL,
Notary Public, N. Y. Co., N. Y.

349 NEW YORK, *May* 27, 1882—10 a. m.

Parties met pursuant to adjournment.

Present: Same counsel as before.

JAMES KENNELLY, a witness produced on behalf of Hall, being duly sworn, in answer to interrogatories propounded by Mr. BROADNAX testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is James Kennelly; my age is forty-nine years; I reside in Hartford, Connecticut; am employed by the Colt's Patent Fire-Arm Manufacturing Company.

2 Q. State whether you are acquainted with Thomas G. Hall, James M. Adams, and Moses C. Johnson.

A. I am acquainted with all three.

3 Q. State whether the Colt's Patent Fire-Arm Manufacturing Company have done any work for the Interchangeable Tool Company; and, if yea, please to state the nature of the work.

A. They have made some dies for handles and jaws for nippers, and paid me for doing the labor on the same.

4 Q. State whether or not the Colt's Patent Fire-Arm Manufacturing Company made or caused to be made the dies in which the drop forgings are made for the No. 2 nipper of the Interchangeable Tool Company.

A. The superintendent directed me to make them, and I have made them, and the Colt's Company paid me for them.

5 Q. Please examine the nipper I now show you, marked Hall's Exhibit No. 10, and state if you recognize it as the No. 2 nipper of the Interchangeable Tool Company for which you made the forgings.

Question objected to as informing witness what the article is.

350 A. I do recognize it from external appearance and as an article that could be finished from the forgings I have furnished that company.

6 Q. Please state whether or not you were furnished by the Interchangeable Tool Company or any of its officers at any time a model from which you made the dies, or caused them to be made, into which the drop forgings for the No. 2 nippers were made.

A. Yes, sir; they have furnished me a model so that I could forge a piece to finish the size that they have furnished me.

7 Q. Please state whether or not you made or caused to be made the dies in which the forgings of the No. 2 nipper are made.

A. I made part myself and caused my employees to make other parts.

8 Q. Please examine the forging I now show you and state if you recognize it as one of the handle forgings for the No. 2 nipper made in the dies to which you have referred.

Question objected to as calling for evidence-in-chief, and the introduction of the forging at this stage of the proceedings is also objected to.

A. I do; I believe I have either given it to Gustam or sent it by express to the Interchangeable Tool Company. I haven't seen it for probably a year or more.

9 Q. State, if you please, whether that forging is the same as the forgings you now furnish the Interchangeable Tool Company and have been furnishing it for the handles of their No. 2 nipper.

A. They are; they might possibly vary $\frac{1}{30\,0\,0}$ or $\frac{1}{50\,0\,0}$ of an inch in thickness, but substantially they are the same.

351 Forging offered in evidence and marked Hall's Exhibit "Drop Forging," J. E. B., notary public, May 27, 1882.

10 Q. State, as near as you can recollect, when it was that you made or caused to be made the dies in which these forgings are made.

A. In May or June, in 1879. The Colt's Patent Fire-Arm Manufacturing Company credited them to me in July, 1879.

11 Q. Are you certain that these dies were made by you in May or June of 1879?

A. I am positive they were made May or June or the fore part of July, or they would not have been credited to me in July, 1879.

12 Q. State, if you recollect, who it was that gave you directions to make these dies.

A. Mr. Lord, superintendent, through Mr. Hall, who was present. Mr. Lord told me to do as Mr. Hall directed. I refer to Mr. Thomas G. Hall.

13 Q. State whether or not Mr. Thomas G. Hall did explain to you then how he wanted the dies and forgings made.

A. He did, and I made them according to his directions.

14 Q. Please to state whether Mr. Hall showed you a model from which he wanted you to make the dies.

A. He did, and it was in the Colt's Patent Fire-Arm Company's possession yesterday when I left the shop.

15 Q. Please to state whether or not that model has a cog connection between the handles.

A. The model had what we considered a male and female handle; it had a tooth connection between the handles; the same forgings intended to make both male and female handles.

16 Q. State whether or not that model was the model of a
352 complete nipper or the model of the handle only.

A. I have seen the model of the complete nipper before the superintendent instructed me to anneal the dies and resink them according to Mr. Hall's directions.

17 Q. Please to state whether or not Mr. Hall was recognized at the works of the Colt's Patent Fire-Arms Manufacturing Company as the authoritative head of the Interchangeable Tool Company for which this work was done.

A. I believe he was; the superintendent gave me orders to do work according to his directions.

18 Q. When you say that the model from which you sunk these dies is in the possession of the Colt's Patent Fire-Arms Manufacturing Company do you refer to the model from which you made the original dies or the model from which you altered the die?

A. I refer to the model from which I made the original dies.

19 Q. And have you also got the model from which you altered the dies to enable them to make the tooth connection between the handles?

A. I believe I have.

20 Q. And it was in May or June, as I understand you, that the alteration was made?

A. It was.

21 Q. State what, if any, experience you have had in working with milling tools.

A. I have made them and worked with them more or less for the past ten years.

22 Q. State whether or not, in your opinion, any competent workman would take a model to set his milling tools by in manufacturing any article after a model.

A. Certainly he would set his milling tools to his model, but he would not mill the model.

23 Q. Would he, in setting his milling tools, run the milling
353 tools over the model so as to leave the marks of the milling tool upon the model?

A. Certainly not. Any man would be discharged if he did that. It would have to be through carelessness or ignorance.

24 Q. State whether you have ever seen a tool-maker treat his model tool in that way.

A. I never have or never heard of it.

25 Q. Please to look at this model, marked Johnson's Exhibit C, and state whether you have seen it before to-day.

A. No, sir; I have not.

26 Q. Mr. Moses C. Johnson swears, in his testimony in this case,

that the jaws of that model constitute the model jaws of the No. 2 nipper of the Interchangeable Tool Company, and he swears that he made them, and that he used them to adjust the milling tools by, and that in so doing he run them through the mills so as to leave the mark of the milling tools on the outside and the inside of one of the jaws—the one marked with the letter W on its side. Now please to state whether, in your opinion, Mr. Johnson would use his model in that way.

A. My opinion is that Mr. Johnson is too good a mechanic to do anything of the kind.

Cross-examination of witness by Mr. ELLIS:

27 X Q. Will you please examine carefully the marks of a milling tool on one of the jaws of Exhibit C and say whether you think that those marks are merely scratches made by a milling tool coming in contact with the jaw or whether the jaw was milled into its present shape?

A. That would be impossible for any man to decide, whether that comes from the machine milled with $\frac{1}{500}$ of an inch or $\frac{1}{1000}$ of an inch. It is evident that milling marks are on the edges of the jaw at present, and it has the appearance of being milled to conform to its present shape.

354 28 X Q. Are there not points on the outside near the cutting edge, on the inside near the middle and towards the rear of the lever, where the mills do not appear to have touched and the file marks still remain?

A. There are, but whether they were filed before milling I am not capable of judging.

29 X Q. Did you make the original dies that you say were altered over in May or June, 1879, by Mr. Hall's direction?

A. I didn't do the whole work, but they were made under my direction and partly by myself, and I was paid by the Colt Company for them.

30 X Q. About what date were they made?

A. Prior to September 30, 1878, for I got paid for them by the Colt Company in October following.

31 X Q. Since May, 1879, have you made or altered over any dies for the jaws of the Interchangeable Tool Company's nipper No. 2?

A. I have altered the dies, but I can't tell at what time, for the Colt Company didn't pay me anything for it. It didn't cost me anything. The dies were worn so that I had to resink them, and it required no extra expense to resink them in a new shape.

32 X Q. About how long was it, to the best of your recollection, after you made the alterations in the handle dies that you made the alteration in the jaw dies?

A. To the best of my recollection the alterations were made at the same time—that is, prior to July 30, 1879.

33 X Q. Did you have a model to work from, or were the alterations made by descriptions and instructions?

A. Best of my recollection is I have a model.

34 X Q. Please describe the teeth which, I understand you to say, were on the model from which the original dies were made.

355 Counsel for Hall objects, as the witness has not said there were teeth in the original dies.

A. There were no teeth in that model; therefore I could not describe them.

35 X Q. I will read Q. and A. 15 and 16 of your direct examination. (Counsel reads questions and answers referred to.) What model do you refer to in those answers?

A. The first model had no teeth; the second model had a tooth. Mr. Hall showed me a model at first for which I made dies to forge parts to finish like sample. He afterwards brought me a model to alter the dies so as that they would make forgings to finish like the model he had then.

36 X Q. Which model do you mean to say is now in the possession of the Colt's Patent Fire-Arm Company, to your knowledge—I mean the one that was there when you left yesterday—the one with the teeth or the one without?

A. The one I saw yesterday is the original model, but I believe the other is there. I made it my business to look for the original models of three sizes, Nos. 1, 2, and 3.

37 X Q. Do you mean by the original model the one without the teeth?

A. The original model No. 1 has got the teeth; the original model No. 2 has not got the teeth.

JAMES KENNELLY.

Subscribed and sworn to before me this 27th day of May, 1882.

[L. S.] J. EDGAR BULL,
Notary Public, N. Y. Co., N. Y.

356 *Testimony on Behalf of Moses C. Johnson.*

In the U. S. Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

In interference. Cutting nippers.

Theo. G. Ellis, attorney for Johnson.

357 COMPLAINANT'S EXHIBIT INTERFERENCE RECORD. H. E. T., Special Examiner.

U. S. Circuit Court, East. Dist. of N. Y.

HENRY G. THOMPSON *vs.* THOMAS G. HALL *et al.*

In the United States Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

In interference. Cutting nippers.

Amos Broadnax, Esq., attorney for said Hall:

DEAR SIR: Please take notice that on Thursday, the seventeenth

day of November, 1881, at ten o'clock in the forenoon, at the office of Henry E. Taintor, No. 333 Main street, in the city of Hartford, Connecticut, I shall proceed to take the testimony of Moses C. Johnson, A. Gustam, Francis A. Pratt, and Henry Hammond, all of said Hartford, and others on behalf of said Johnson, to be used in the United States Patent Office in the above-named interference. The examination will be continued from day to day until completed. You are invited to be present and cross-examine.

Very respectfully, THEO. G. ELLIS,
Attorney for Johnson.

Hartford, Conn., November 15, 1881.

The foregoing notice was served on me this the 16th day of November, 1881.

AMOS BROADNAX,
Att'y for Hall.

358 Before the Commissioner of Patents, in the Matter of the Interference between the Application of THOMAS G. HALL for an improvement in cutting pliers and the patent No. 232,975, granted October 5, 1880, to MOSES C. JOHNSON.

Depositions of witnesses examined on behalf of Moses C. Johnson, pursuant to the annexed notice, at the office of Henry E. Taintor, No. 333 Main street, in the city of Hartford, Connecticut, on Thursday, November 17th, 1881, at 10 o'clock in the forenoon.

Present: Amos Broadnax, Esq., on behalf of Thomas G. Hall, and Theodore G. Ellis, Esq., on behalf of Moses C. Johnson.

MOSES C. JOHNSON produced and duly sworn:

Int. 1. What is your name, age, residence, and occupation?

A. My name is Moses Carlyle Johnson; my age is 37 years; my residence is 53 Wadsworth street, Hartford, Conn., and my occupation is machinist.

Int. 2. State the circumstances of when and how you first became acquainted with a company in New York called the Interchangeable Tool Company, with which Mr. Thomas G. Hall was connected.

359 A. I think it was in September—the latter part—1878, Mr. Mat. Diamond told me that he had received a letter from a party in New York who asked him to recommend or obtain a man capable of taking charge of a shop where they were manufacturing cutting nippers. He at that time, at the Park Central Hotel, in Hartford, Conn., showed to me and read a letter from one of the company and thought it would be advisable for me to go and look into the matter; that he thought that I would be a man that would suit them, and I should say about October 1st or 2d, 1878, I called upon this company, at their office, 71 Broadway, New York, and there met a member of the company, a Mr. A. Gustam, and explained to him my errand there, telling him Mr. Mat. Diamond had

thought it advisable for me to call upon them, as they wished a man to take charge of the manufacturing of a cutting nipper. He at that time showed me a nipper and told me that he had nothing to do with the mechanical department and I would have to go to Harlem and see Mr. Thomas G. Hall. I at that time thought so little of the nipper and the manner it was constructed I did not think it worth while to go to Harlem.

Int. 3. When your attention was called by Mr. Gustam to the nipper referred to in your last answer what did you observe about it that induced you to form the opinion you have stated?

A. I noticed that the jaws had a tendency to make a shearing cut—that is, one overlap the other. I mean by that which necessarily would create a pressure which would break one or the other jaw, whereas a nipper to be correctly constructed should at all times have one jaw in perfect line with the other.

Int. 4. State whether you were ever employed by J. H. Jencks & Co.; and, if so, state when and for how long you were so employed, and also state where their place of business was.

A. I was. Immediately—that is, a day or two—after my acquaintance with 71 Broadway—in 1878, about October 1st or 2d—somewhere about that time—I called on Mr. E. Bullard, at 14 Dey street, New York; told him my business in New York, and at this time told him that I would like to engage in business in the city of New York. He told me that I was just the man that he at that time wished to go to work at his shop, at the corner of Centre and Hester streets, as he saw the necessity of having some men in the shop who had been educated in the leading machine shops of Hartford
360 or the Eastern States, as they had at that time a job which would either make them a great deal of money or they would lose a great deal of money. I would state that I went into the employ of J. H. Jencks & Co. in the early part of October, 1878, and continued with them until about the first of February, 1879; there or thereabouts. I could not say exactly the dates.

Int. 5. You have mentioned in your answer the name of Mr. E. P. Bullard. What connection did he have with the firm of J. H. Jencks & Co.?

A. He told me he was a partner.

Int. 6. What was your principal occupation while you was with the firm of J. H. Jencks & Co.?

A. My principal occupation was building a printing press for Samuel Crump, of Mont Clair, New Jersey, and after that building a model nipper for the Interchangeable Tool Company, under the directions of Mr. Thomas G. Hall, at that time president of the Interchangeable Tool Company.

Int. 7. Do you know where that model now is?

A. I do not.

Int. 8. Please describe it as near as you can.

A. I would state the model I made was an exact duplicate of a cut on a circular, with exceptions that the long end of the jaw lever was more hooking. This is the circular that I refer to.

(Counsel for Johnson offers the circular produced by witness in

evidence, and the same is marked Johnson's Exhibit A, H. E. T., N. P.)

Int. 9. State whether or not Mr. J. M. Adams was employed by J. H. Jencks & Co. at the same time as yourself.

A. He was.

Int. 10. State where you first became acquainted with Mr. Adams and how long you had known him.

A. In Hartford, Connecticut. I had known him for ten years at least; probably more.

Int. 11. Did you have any conversations with Mr. Adams about the nipper while you were with J. H. Jencks & Co.?

A. I did; several.

Int. 12. State generally what was the nature of those conversations.

361 (Question objected to as irrelevant, immaterial, and incompetent upon any issue in the controversy and as not evidence upon any issue in question.)

A. I told Mr. Adams what brought me to New York from Hartford; told him of my conversation with Matthew Dimond and with Mr. A. Gustam at 71 Broadway. I had several conversations with him about the Hall nipper, and told him that I thought so little of the nipper in the manner it was constructed that I did not think it worth my while to go to Harlem to see Mr. Thomas G. Hall, who at that time, Mr. A. Gustam told me, had charge of the mechanical department of the manufacture of the nipper. I at this time explained to Mr. Adams the reason of my coming from Hartford to New York.

Int. 13. Where were you living at the time you worked for J. H. Jencks & Co.?

A. I roomed at the Revere House, corner of Houston and Broadway, New York, and took my meals at restaurant.

Int. 14. State whether or not your attention about this time was particularly called to the subject of cutting nippers and whether you made any attempts at its improvement.

A. I would state that it was. In fact, my attention was called to it from the time I left Hartford, in 1878. I had several conversations while rooming at the Revere House with Mr. O. D. Woodbury, of 103 East Houston street.

Int. 15. State what conversations you had with Mr. O. D. Woodbury, if any of them related to improvements of yours upon the cutting nippers.

A. We had several conversations about the construction of the nipper, and he agreed with me that it was mechanically of bad construction and not all practical. I at this time called his attention to the fact that the two jaws or cutting heads should move at a uniform speed one with the other, and at that time made a sketch of what I considered would be the proper way—at least one way—of accomplishing the purpose.

Int. 16. State if you have the sketch you refer to still in your possession and if you can produce it.

A. I can. I have it in my possession.

(Witness produces a sketch made upon one of the Revere House cards, which is offered in evidence by counsel for Johnson and marked Johnson's Exhibit B, H. E. T., N. P.)

362 Int. 17. State, as near as you can, the date at which you made this sketch.

A. I could not state the exact date. It was during the month of October, 1878.

Int. 18. Please look at the sketch and describe what points were intended to be illustrated by it.

(Objected to as incompetent. The sketch must speak for itself.)

A. That the movement of one handle would necessitate the movement of the other the same distance.

Int. 19. When did you first go to work for the Interchangeable Tool Company, in New York?

A. About the twentieth of April, 1879.

Int. 20. How long were you employed by that company?

A. About one year; a little over, perhaps.

Int. 21. State what you were employed to do when you commenced, and generally what was your occupation while employed by the company.

A. I was employed as a tool-maker and was hired by Mr. Adams, who at that time (about April, 1879, this was) was superintendent of the shop; at least he told me he was. I don't know that he was. My general occupation was making tools and adjusting machines.

Int. 22. Were you or were you not at any time employed by said company to exercise your inventive genius in improving the cutting nippers they were manufacturing?

A. I was not employed to exercise my inventive genius.

Int. 23. While with the Interchangeable Tool Company did you make any drawings for them? If so, state what drawings you made and the dates you made them, as near as you can recollect.

A. While in their employ I think I made drawings at five different times. The first two were for milling-machine fixtures. The next drawing was known as their seven-inch nipper, made in September, 1879. The drawings for the fixtures were probably made previous to this. The fourth drawing I made was what is known as the No. 1 nipper on their list. None, to my knowledge, has ever been made but the model. This drawing of the No. 1 nipper was made in April, 1880. The fifth drawing was of some screw-machine tools, and was made in April, 1880.

363 Int. 24. Please look at Hall's Exhibit No. 1 and say whether that is one of the drawings you refer to, and which one.

A. It is one that I refer to. My testimony would go to show that this was drawing No. 4, made at Milford, Connecticut, in April, 1880.

Int. 25. State, if you know, who wrote the initials "M. C. J." on this drawing.

A. I do. I saw him do it—Mr. Leon Gustam.

Int. 26. Were the drawings that you made of machine fixtures adapted to make nippers of the kind shown in the drawing Exhibit 1?

A. They were for a larger size.

Int. 27. State whether or not you made any models for the Interchangeable Tool Company while you were employed by them; and, if so, how many?

A. I did. I made two; one of the seven-inch nipper, in the fall of 1879; also one of the No. 1 nipper, in the spring of 1880.

Int. 28. Describe these models as to their peculiarities, especially relating to the matter now in controversy.

A. I would say that this Exhibit No. 1 describes it.

Int. 29. Which model—the first or second—do you mean by "it?"

A. It describes them both—that is, the mechanical movement of both.

Int. 30. Do you know and are you familiar with the particular combination of parts in the cutting nippers that are the subject-matter of this interference?

A. I am.

Int. 31. State, as near as you can, when you first conceived the invention of the combination of parts stated in this interference by the Patent Office and contained in your patent granted October 5th, 1880.

A. Immediately after leaving their office, in October, 1878, I was satisfied that the handles or jaws should be geared or locked in such manner that the movement of one would necessitate the movement of the other the exact distance of the movement of the first lever, and in the winter of 1879 I discovered that the part or portion being cut from the end of a rod or wire would leave the jaws with such force as to enter the V-shaped spring and thereby preventing the working of said spring. To overcome this difficulty I saw the necessity of putting projections below the cutting edge and immediately
364 above the jaw fulcrum, which would always present a smaller space than the diameter or dimensions of rod being cut. I also discovered that these projections would prevent the spring from working up (by "up" I mean towards the cutting edge), and thereby doing away with two pieces which they then had in their nipper, to wit, one piece a brass block, slotted, for the tang of the spring; the other piece was a screw.

Int. 32. State, then, the nearest you can recollect, the month and day when you first conceived the invention of the combination in question.

A. In the month of May, 1879, I made a working movement of my invention.

Int. 33. Describe the working movement you made in May, 1879, as near as you can, and where it was made.

A. I would state it was an exact duplicate of Exhibit No. 1, so far as the mechanical movement is concerned, including projections on jaws for preventing the entrance of matter not required inside of

the nipper. It was made in the American Express building, corner of Jay and Hudson streets, New York.

Int. 34. Have you that movement still in your possession and can you produce it?

A. I have. I do produce it.

(Same model offered in evidence by counsel for Johnson and marked Johnson's Exhibit C, H. E. T., N. P.)

Int. 35. In the construction of this model did you get any ideas from any one else, or was it entirely of your own invention?

A. I did not get any ideas from any one else, and it was my invention, so far as I know.

Int. 36. Where did you get the material for making the handles of this model nipper?

A. Mr. J. M. Adams gave me the material from his private tool chest.

Int. 37. State, if you know, what the stamp was, part of which shows on one of the handles.

A. I do. It was the stamp of an alarm register company. This register was for conductor's use.

Int. 38. Was it on the material before you made the handle?

365 A. It was.

Int. 39. Where did you get the material for the other parts of the nipper?

A. They were picked up out of the refuse matter or material belonging to the Interchangeable Tool Company.

Int. 40. Give, as near as you can, the exact dates on which this model was commenced and completed.

A. I should say it was commenced and completed between May 10th and May 20th, 1879. I could not state the exact dates.

Int. 41. How long after you made this model was it before you applied for a patent?

A. I should say it was about one year—perhaps a little over. It may be less.

Int. 42. At the time that you made this model had the Interchangeable Tool Company done anything in their shops towards making a nipper embodying the same improvements?

A. Not to my knowledge.

Int. 43. Would you have been likely to have known from your position with the company if anything had been done in making such a nipper?

A. I think I should.

Int. 44. What was the character of the nipper, as near as you can describe, that was made by the Interchangeable Tool Company when you were first employed by them?

A. Exhibit A is the best description I can give of it. That explains itself.

Int. 45. How long was it after you commenced work for the company before they introduced any or all of the improvements shown in the model Exhibit C?

A. I think it was immediately after or, in other words, as soon as they could make their tools and produce nippers for the market.

Int. 46. At whose suggestion were these improvements introduced in the shop of the Interchangeable Tool Company?

A. I should say that my model of the working movement led the members of the company to adopt it. Who or by whom I can't say.

Int. 47. Who had charge of the preparations in the way of making drawings and getting up the machinery for manufacturing the improved nipper?

A. Mr. J. M. Adams.

366 Int. 48. Do you know of any experiments made by Mr. Adams for the purpose of improving the nipper?

A. I do.

Int. 49. State what they were, as near as you can recollect.

A. He filed a series of teeth on each handle lever—three or more—and that is the only experiment I know of.

Int. 50. About what time was that?

A. This was in the fore part of May, 1879, or perhaps about the middle. I do not remember the exact dates so as to give them.

Int. 51. Was the experiment of Mr. Adams a success?

A. I do not remember ever seeing a working model of his experiment. It was never adopted by the company.

Int. 52. Did you ever see any other model or experimental nippers at the shop of the Interchangeable Tool Company embodying any of the principles shown in your patent of October 5th, 1880, which were got up by any other person than yourself and the experiment you name, of Mr. Adams?

A. I never did, unless they might call a No. 4 or 7-inch nipper, which had two or more holes drilled in one handle and, I should say, three in the other, into which were inserted pieces of Stub's wire, said pieces of wire to act as gear teeth or cogs. Who drilled the holes or who put the teeth in I couldn't say positively. I know it was not Mr. Hall, for it was not done at his suggestion. When the nipper was placed together in working shape the wire teeth were so slender and the holes drilled so irregular that it created a purchase on two or more teeth, which were broken by the first attempt to cut wire. That model has been put in as some exhibit. I do not remember the number. Mr. Hall says he had the teeth filed and caused two of them to be removed on one handle, and the exhibit itself will show whether they were filed or broken.

Int. 53. About what time, stating the date as near as you can, was this experiment made?

A. I should say it was about the first of June, 1879.

Int. 54. Do you know for what especial purpose these handles with gear teeth or cogs were made?

A. I know at the time they were talking of putting a sample nipper into the fair of the American Institute, at New York. They wished very much to get in a large-sized nipper. They were then preparing to make only one size, the No. 2.

367 Int. 55. When you commenced work for the Interchangea-

ble Tool Company what model of nipper were they working from as a standard?

A. The one which was made at J. H. Jencks', No. 180 (I think it was) Centre street.

Int. 56. About what machinery and stock did the Interchangeable Tool Company have at that time in their shop—I mean in April, 1879?

A. They had three or four second-hand milling machines, some polishing apparatus, perhaps a small bench drill press. They also had several hundred parts of the nipper corresponding to the parts shown in Hall's Exhibit No. 8.

Int. 57. Did they have any forgings?

A. They did.

Int. 58. State what they were and how many.

A. I could not state the exact number; there were several hundred—might be a thousand; they were intended for nippers like Exhibit No. 8—that is, so far as the handles and jaws are concerned.

Int. 59. Did the company about this time order new machinery?

A. They did.

Int. 60. State about what it was and what it was adapted to make.

A. Milling machines, lathes, drill presses, &c. Those tools are adapted to make anything.

Int. 61. Did you have any conversations with J. M. Adams and others, about this time, in which you explained your improvements in the construction of the nippers?

(Question objected to on the ground that it has already been asked and answered.)

A. I did, shortly after this time. By "this time" I understand April, 1879.

Int. 62. State what those conversations were and when they occurred.

A. The conversations occurred at various times, in the shop and out of the shop, with my room-mate, E. A. Whittelsey, and also Mr. Adams. They were in relation to the nipper as then being made and constructed.

368 Int. 63. Did you ever intend to give your invention to the Interchangeable Tool Company?

(Question objected to as not competent to prove what the witness intended to do.)

A. Not without value.

Int. 64. After you commenced to work with the Interchangeable Tool Company who was superintendent of the mechanical department of the work?

A. Mr. J. M. Adams.

Int. 65. What was the position of Mr. A. Gustam in April, 1879, and what office did he hold in the company?

A. I think he was secretary. In fact, he was considered by the men in the shop as a general manager.

Int. 66. At that time, April, May, and June, 1879, did Thomas G. Hall have anything to do with the mechanical part of the work at the shop?

A. Not any, to my knowledge.

Int. 67. State about how long, if you know, was it before you commenced with the Interchangeable Tool Company that Mr. Adams was employed in the shop.

A. I think he was hired about the 15th of April, 1879.

Int. 68. State, as near as you can recollect, when you saw the first complete nipper made on the plan of the model Exhibit C.

A. I think it was some time in July, 1879.

Int. 69. Who made it?

A. It was made by several different men. Different men did different operations on the machines.

Int. 70. Previous to the making of this complete nipper was there any working model made from which to construct the tools?

A. There was not a working model made. The tools were constructed by Exhibit C. That is the model the tools were made from.

Int. 71. While you were at work for the Interchangeable Tool Company were you or not ever paid for extra time or over time for work done for the company?

A. Mr. Adams gave me ten dollars at one time for making drawings for milling-machine fixtures. This is the only money I remember ever receiving for over work or over time.

Int. 72. Are you acquainted with the state of the art, so far
369 as regards cutting nippers, for, say, five or ten years back—I mean generally as to their construction.

A. I am. I have seen drawings or cuts of several cutting nippers made by different parties.

Int. 73. Are you or not knowing to the fact that such tools were made with gear teeth between the two handles for the purpose of guiding their movements prior to 1877?

A. I think the Patent Office records would show that. I have seen them.

(Direct examination closed.)

(Cross-examination by AMOS BROADNAX, Esq.:)

X Int. 74. Where are you employed as a machinist now, if anywhere?

A. I am now superintendent of the Hartford Duplicate Machine Tool Company, No. 262 Main street, Hartford, Conn.

X Int. 75. How long have you been employed there as such superintendent?

A. I was made superintendent on the forming of the company, and have been employed at No. 262 Main street since the first of September, 1881.

X Int. 76. Is that company a corporation?

A. It is.

X Int. 77. Who are its managers—I mean its trustees?

A. Mr. A. D. Brower, of Hackensack, New Jersey, and Mr. M. C. Johnson of Hartford, Conn.

X Int. 78. Who are the directors?

A. Mr. A. D. Brower, Mr. M. C. Johnson (that is myself), and Mr. A. D. Brower's son, whose first name I have forgotten.

X Int. 79. Is that a corporation organized under the laws of Connecticut?

A. It is not.

X Int. 80. Under the laws of what State is it organized?

A. New Jersey.

X Int. 81. Previous to your going into the employ of that corporation, in whose employ was you?

A. Mr. Dwight Slate.

370 X Int. 82. Where?

A. Hartford, Conn.

X Int. 83. When did you go into his employ?

A. The fore part of March, 1881.

X Int. 84. When did you leave his employ?

A. In August, 1881.

X Int. 85. What time in August?

A. I don't know the exact time. His books will tell that. It was the latter part of August.

X Int. 86. Previous to your going into the employ of Mr. Slate in whose employ was you?

A. J. B. Secor, Bridgeport, Conn.

X Int. 87. When did you go in his employ and when did you leave it?

A. I went into his employ about August, 1880, and left it about the last of January, 1881.

X Int. 88. Previous to your going into the employ of Mr. Secor in whose employ was you?

A. The Frary Cutlery Company, at Bridgeport, Connecticut.

X Int. 89. When did you go into the employ of that company and when did you leave it?

A. I think it was some time in May, perhaps the latter part of May, 1880, that I went into their employ, and I left about the first of August, 1880.

X Int. 90. Previous to your going into the employ of the Frary Cutlery Co. in whose employ was you?

A. The Interchangeable Tool Company.

X Int. 91. You are the Moses C. Johnson, as I understand it, that is one of the parties to this interference?

A. I am.

X Int. 92. Do you own the patent involved in this interference?

A. I do not.

X Int. 93. Who does own it?

A. Mr. Henry G. Thompson, I suppose; he did.

X Int. 94. Did you assign it to him?

A. I did.

X Int. 95. Before or after the patent was issued?

A. I think it was before.

X Int. 96. How long before?

371 A. I don't remember.

X Int. 97. Do you remember when the assignment was made?

A. I do not remember the date.

X Int. 98. State as near as you can.

A. Say about June, 1880.

X Int. 99. How did you come to assign the patent to Mr. Henry G. Thompson?

A. He bought it of me.

X Int. 100. What did he give you for it?

A. Stocks.

X Int. 101. What kind of stocks?

A. Interchangeable Tool Company's stock.

X Int. 102. Did he give you anything else?

A. He has.

X Int. 103. What else has he given you?

A. Money.

X Int. 104. How much?

A. I cannot tell now how much.

X Int. 105. When did he make his last payment?

A. I could not give the date of that.

X Int. 106. When did he make the first payment?

A. He made the first payment when I assigned, or immediately after.

X Int. 107. How much did he pay you the first payment in money?

A. The first payment was fifty dollars.

X Int. 108. What was the amount of his last payment?

A. I think it was one hundred dollars.

X Int. 109. About when was that made?

A. I could not give the date. I have no record of it.

X Int. 110. State as near as you can recollect.

A. Some time within the past month.

X Int. 111. How many shares of the Interchangeable Tool Company's stock did he give you?

A. Twenty.

X Int. 112. Has it been transferred to you on the books of the company?

A. I do not think it has.

X Int. 113. What is its par value?

372 A. One thousand dollars.

X Int. 114. In selling this patent to Mr. Thompson did you seek him or did he seek you?

A. I don't know that he ever sought me and I don't know that I ever sought him.

X Int. 115. How did you get together to make the sale?

A. I don't remember. It was brought about by other parties. I do not remember just how it happened.

X Int. 116. By whom was it brought about?

A. I think by Samuel Moore.

X Int. 117. Any one else?

A. I do not remember any one else at the time. I do not remember the details of the thing at all.

X Int. 118. Who is Samuel Moore? Where does he reside?

A. I could not say where he does reside now.

X Int. 119. Give his last place of residence known to you.

A. Milford, Connecticut.

X Int. 120. Did Mr. Samuel Moore introduce you to Mr. Thompson?

A. He did not.

X Int. 121. In what way did Mr. Samuel Moore bring about the sale of the patent to Mr. Thompson?

A. He told me that he thought Mr. Thompson would buy it from me.

X Int. 122. Did you first tell Mr. Samuel Moore that you was the owner of the invention embraced in the patent?

A. I don't know who did first tell him.

X Int. 123. Did Mr. Samuel Moore first seek you to effect the purchase of the patent for Mr. Thompson or did you seek him?

A. There was no seeking about it.

X Int. 124. You mean that Mr. Moore did not apply to you and that you did not apply to him?

A. That is just exactly what I mean.

X Int. 125. Then, how did Mr. Moore bring about the sale of the patent?

A. I don't remember exactly. It came up in general conversation.

X Int. 126. Please to relate all the circumstances attending the sale of the invention and patent to Mr. Thompson.

373 A. I think all there was about it was that he knew the invention was mine and told me that he thought Mr. Henry G. Thompson would purchase if I would sell. Not having any more money than I wanted at that time, I sold.

X Int. 127. How did Mr. Moore know that you claimed to be the inventor of the invention embraced by the patent?

A. He could tell more about that than I. I don't know where he did first receive his information.

X Int. 128. To whom did you first claim to be the inventor of the improvement in nippers embraced by the patent?

A. I could not say.

X Int. 129. State to whom you first claimed the invention in question of whom you have any recollection.

A. I always supposed it was generally considered by the men in the employ of Interchangeable Tool Company and others that it was my invention from the making of the model Exhibit C, and spoke of it to several in a general way. I don't know that I absolutely claimed it to any one in particular and could — state who the first person was I talked about the matter with.

X Int. 130. Can't you recollect the name of any person to whom

you claimed to be the inventor of the improvement in nippers claimed in the patent?

A. Yes; I can remember several.

X Int. 131. Please to give their names.

A. Mr. E. A. Whittelsey, Mr. Charlie Church, Thomas Thomson, Samuel Moore, and I don't know how many others. I think I was talking with Mr. F. A. Pratt, of the Pratt & Whitney Company.

X Int. 132. Which of the persons you have named did you speak to first about the invention, claiming it to be yours?

A. I do not remember.

X Int. 133. When did you first claim the invention as yours to any of these gentlemen?

A. I could not state the time. I have got nothing to locate it by.

X Int. 134. When did you speak to Mr. Whittelsey about the invention, claiming it to be yours?

A. That I could not say.

X Int. 135. Are you certain that you claimed the invention as yours to Mr. Whittelsey?

A. I would not swear that I did in so many words.

374 X Int. 136. Where was Mr. Whittelsey when you were talking to him about the invention and claiming it to be yours?

A. He was in New York.

X Int. 137. Whereabouts in New York?

A. That I don't remember. It was somewhere in the city. It was talked about in a general way, and I don't remember the time.

X Int. 138. Who is Mr. Whittelsey, and where does he reside?

A. The last I knew of him he was in Brooklyn, eastern district.

X Int. 139. Was Mr. Whittelsey employed by the Interchangeable Tool Company at the time you were employed by it?

A. Part of the time.

X Int. 140. Was he there when you made the model Exhibit C?

A. He was.

X Int. 141. Did he work in the same room with you?

A. He did.

X Int. 142. Saw you at work upon the model?

A. I suppose he did.

X Int. 143. How near did he work to you?

A. He worked at the next vise.

X Int. 144. How far was his vise from yours?

A. His vise — in front of one window and mine in front of the next one—six to eight feet apart or about that.

X Int. 145. Did Mr. Whittelsey room with you at the hotel?

A. He did not.

X Int. 146. Did you not say that Mr. Whittelsey was your room-mate?

A. Not at the hotel.

X Int. 147. Was he your room-mate anywhere?

A. He was.

X Int. 148. During the time that you were working together at the shop of the Interchangeable Tool Company?

A. During a portion of the time—not all the time.

X Int. 149. Was he your room-mate during that portion of the time you was engaged in making the model Exhibit C?

A. He was.

X Int. 150. At the time you sold your patent to Mr. Thompson did you tell him that some one else had offered you five hundred dollars for it?

A. I don't remember that I did.

375 X Int. 151. Do you swear that you did not?

A. I will not swear that I did not. I don't remember. I don't think I ever did.

X Int. 152. As matter of fact, did any one else offer to purchase the patent of you?

A. I had talked with other parties.

X Int. 153. Who were they?

A. I don't know that they would care to be brought into the case.

X Int. 154. Do you decline to answer?

A. I had a talk with Mr. William N. Woodruff, of Hartford, Conn.

X Int. 155. How long before you sold to Mr. Thompson?

A. That I don't remember exactly. The conversation I had with him was at Milford. I don't remember the day he was there. Probably the hotel register will show his name.

X Int. 156. Did he make you an offer for the patent?

A. I don't know that he did.

Adjourned to Nov. 18th, 1881, at 9.30 a. m.

FRIDAY, *November 18th*, 1881—9.30 a. m.

Met pursuant to adjournment.

Present: Same parties.

Cross-examination of MOSES C. JOHNSON continued:

X Int. 157. Do you swear that he did not?

A. No; I will not swear that he did not. I do not remember.

X Int. 158. How large was the room in which you worked for the Interchangeable Tool Company in New York?

A. I don't know. I never measured the room; never had any occasion to measure the room. I should say it was about 25 × 40. It might be more or less.

X Int. 159. That is the best of your judgment, is it?

A. It is.

X Int. 160. How many men were employed in that room at the time you was employed there?

376 A. There were different numbers. When I first went there there were very few—two or three. Later there might have been ten, more or less. I don't remember the number. I had no reason to count them.

X Int. 161. Give the names of the persons who were employed in that room during the time of your employment there.

A. J. M. Adams, myself, Mr. L. Smith, Mr. E. A. Whittelsey, Mr.

Pope, Mr. F. K. Hills, Charles Ashley, and some others. I do not remember their names.

X Int. 162. This room in which you worked did it face towards Hudson St.?

A. It did.

X Int. 163. And was the vise bench along that side of the room next to the street?

A. A part of it.

X Int. 164. How much of it?

A. Probably at least three-quarters of it. I never measured the bench and don't know the length.

X Int. 165. How many vises were there on that part of the bench that was along the room facing Hudson St.?

A. I think three; might have been four.

X Int. 166. Don't you know exactly how many there were?

A. I did at the time.

X Int. 167. Don't you know now how many there were? Can't you recollect?

A. As I said in a previous answer, there were three; might have been four; I think three.

X Int. 168. Are you sure there were no less than three and no more than four?

A. My previous answers are all I know about it and as near as I know about it.

X Int. 169. Question repeated.

A. I have answered the question to the best of my ability.

X Int. 170. Did you work on one of those vises?

A. I did.

X Int. 171. Did you have one of the middle vises or one of the end vises, supposing there to have been more than three?

A. I did not have one of the middle vises. The bench run parallel with the street and I had an end vise.

X Int. 172. Which end of the bench was it?

377 A. North, I should say; the uptown end.

X Int. 173. Who worked at the vise next to you, on your right?

A. I think it was E. A. Whittelsey.

X Int. 174. Was there any vise at your left?

A. Not on the bench running parallel to Hudson St.

X Int. 175. Was there any vise to your left on any bench?

A. There was.

X Int. 176. Who worked on that vise?

A. I think James Courtney, the biggest part of the time.

X Int. 177. Who worked on the vise next to Mr. Whittelsey, on your right?

A. Different ones worked at that vise; Mr. Adams worked there some; Mr. Pope and Mr. Whittelsey at different times.

X Int. 178. Whose vise was that—I mean who was it that usually worked at that vise most of the time?

A. I think Mr. Adams, but couldn't say. I didn't keep the number of days that any one person worked at it.

X Int. 179. But that was the vise that was generally recognized as Mr. Adams' vise, was it?

A. I think it was.

X Int. 180. Who worked at the next vise on your right, next to Mr. Adams' vise?

A. I don't remember that there was any vise there. There might possibly have been one. I don't recollect it.

X Int. 181. Was there any vise to the left of the one that Mr. Courtney worked on?

A. I have no recollection of any.

X Int. 182. On what vise did Mr. Pope work?

A. Possibly he might have worked on what has been called here Mr. Adams' vise. He worked at a machine the biggest part of the time.

X Int. 183. To the best of your judgment, how far was Mr. Courtney's vise from yours?

A. I should say, on a diagonal line, between four and six feet. That is the best of my judgment.

X Int. 184. By diagonal line you mean across the corner of the shop?

A. I mean a bee line, the shortest distance to get to it across the corner of the shop.

378 X Int. 185. About how far were the vises apart that faced on Hudson street, to the best of your judgment?

A. I never measured the distance, but should say from six to eight feet. It might be more or less.

X Int. 186. What machine did Mr. Pope work on?

A. The planer, the biggest part of the time; the planer or shaping machine

X Int. 187. How far was that from your vise? State as near as you can judge.

A. My best judgment would say ten feet; perhaps two feet more or two feet less, measuring in a bee line.

X Int. 188. Now you have mentioned the vise of Mr. Courtney on your left, the vise of Mr. Whittelsey on your immediate right, and the vise of Mr. Adams, immediately to the right of Mr. Whittelsey—that is, three vises beside your own. Were there any other vises in the shop that you recollect of?

A. In this room, it is possible there might have been one or more. I don't recollect; couldn't state.

X Int. 189 Wasn't there a vise in that room, on which Louis Smith worked?

A. I think he worked at what has been called here Courtney's vise, after Courtney had left it.

X Int. 190. When did Mr. Courtney cease to work on that vise, and when did Mr. Smith begin to work there?

A. That I don't remember, and I couldn't say. There are no reasons why I should remember.

X Int. 191. You say you went to work for the company about the 20th of April, 1879. Was it in this shop in Hudson street that you first worked, after going into the employ of the company?

A. It was.

X Int. 192. And was Mr. Courtney at work on the vise to your left when you went there, or did he come there after you went to work?

A. He came several weeks after I went to work; how many I don't know.

X Int. 193. Was Mr. Courtney the first person that worked at that vise after you went there?

A. That I couldn't say.

379 X Int. 194. Was there any one at work at that vise when you went there?

A. I think not.

X Int. 195. Are Smith and Courtney the only persons who worked on that vise during the time that you was there?

A. I think not.

X Int. 196. Who else worked on it?

A. Possibly I did a little job on it. I think I saw Mr. Gustam filing on it. Different parties in the shop. I made no record of the names.

X Int. 197. Now, did not a person named George Silvia work at that vise?

A. Possibly he did. He could tell better than I.

X Int. 198. Don't you know that he did?

A. No, sir; I do not.

X Int. 199. Are you acquainted with George Silvia?

A. I am.

X Int. 200. Was he in your employ before he went to work for the Interchangeable Tool Company?

A. He had worked for me before.

X Int. 201. Was it through your instrumentality that he went to work for the Interchangeable Tool Company?

A. Mr. Adams hired him. I possibly recommended him.

X Int. 202. Now do you swear that you do not recollect whether Mr. George Silvia worked on the vise to your left or not?

A. It is possible that he done short jobs in it. I don't know.

X Int. 203. Was he a vise hand?

A. He is a machinist, vise hand, machine hand, planer hand, general machinist and tool-maker

X Int. 204. Where is he—where does he reside, I mean?

A. I do not know.

X Int. 205. Where did he last reside to your knowledge?

A. Brooklyn, New York.

X Int. 206. How long ago is that?

A. I don't remember the length of time. It was shortly after he left the employ of the Interchangeable Tool Company.

X Int. 207. Where does Mr. Lewis Smith reside?

A. That I do not know. I heard he resided in Brooklyn.

X Int. 208. Who is Mr. Mat. Dimond?

380 A. Mr. Mat. Dimond was formerly a steel merchant in the city of Hartford. I do not know his pedigree.

X Int. 209. Where does he reside?

A. That I do not know. I have understood in New York city.

X Int. 210. Are you well acquainted with Mr. Mat. Dimond?

A. I consider myself so.

X Int. 211. And it was upon his recommendation that you visited New York and applied to the Interchangeable Tool Company for the position of superintendent, as I understand you?

A. It was through him that I first learned of the company.

X Int. 212. You say that he showed you a letter from one of the company. Who was that letter written by?

A. I didn't see the man write it. I think it was signed by A. Gustam.

X Int. 213. Did you keep the letter or did Mr. Dimond keep the letter?

A. I don't remember that I ever had the letter.

X Int. 214. Didn't you have the letter in your hands when he showed it to you?

A. I don't remember that I did. I am under the impression that he retained the letter in his own hands.

X Int. 215. Didn't you read the letter?

A. Mr. Dimond read the letter. I think he showed me in the letter some references, where they had referred to some bank, as regards their standing.

X Int. 216. Did he show you Mr. Gustam's signature and name signed to the letter?

A. I think he did. I would not be positive. He gave me Mr. Gustam's address.

X Int. 217. And you say that was the latter part of September, 1878, and that about the first or second of October, 1878, you visited New York and called at the company's office, No. 71 Broadway, and that you there saw Mr. Gustam. Did you see any one else at that time in the office of the company, 71 Broadway, beside Mr. Gustam?

A. It is possible I might have seen some one. The office was divided, if I remember right, by a partition running parallel with Broadway. I saw Mr. Gustam in the front portion of the office. In order for me to get into the front portion I had to pass
381 through the other, and I might have seen some one there. I couldn't swear if I did or not.

X Int. 218. How long was you at the office at that time?

A. I don't remember the length of time; possibly an hour.

X Int. 219. What time in the day was it?

A. I should say in the middle portion of the day; perhaps just before twelve. I made no record of it at the time.

X Int. 220. At the time you were there did you talk with any one else about the nipper beside Mr. Gustam?

A. I do not remember that I did.

X Int. 221. Was any one present?

A. I don't remember of seeing any one.

X Int. 222. You say Mr. Gustam, at the time you visited the office of the company, about the first or second of October, showed you one of the company's nippers. Was the nipper he showed you anything like this, Hall's Exhibit No. 8?

A. It was a very similar nipper, with the exceptions of the straight piece of wire between the jaws immediately below the cutting edges, which was not in the one I saw there. To accomplish the purpose of this wire the nipper which I saw had a screw with a taper head about the position of the slot shown in the top of the plate shown in Hall's Exhibit No. 8.

X Int. 223. Are you sure that you saw that nipper fitted with the screw having a taper head running across the throat of the nipper in about the place where the recess is cut in the side plates of the nipper, Exhibit No. 8, at the office of the company, No. 71 Broadway, New York, about the first or second of October, 1878?

A. I did not take the screw out of the nipper, or remove it or the piece running across; possibly it may have been a straight pin or a taper pin; possibly it wasn't a screw.

X Int. 224. Can you swear whether it was a pin or a screw?

A. I did not see the piece removed, and have no way of knowing whether it was a screw or a pin.

X Int. 225. If it was a screw there would have to be some means provided for screwing it in its place. Now, was there any means by which a screw-driver or a wrench could be applied to screw the pin or screw in, whichever it may have been?

A. I don't remember of any slot; do not locate it.

382 X Int. 226. Was there any means of applying a screw-driver or a wrench that you recollect of?

A. I had no reason for taking it apart, and consequently did not use a screw-driver or wrench, and would not have been apt to notice whether there was any provision for it or not.

X Int. 227. I did not ask you if you took it apart or not. I asked you if there was any means of applying a screw-driver or wrench, that you recollect of, to that pin or screw, whichever it may be?

A. I do not recollect.

X Int. 228. Why did you describe it as a screw?

A. I should have described it as a screw or pin at the time.

X Int. 229. If it was a pin how was it kept in its place?

A. I should naturally suppose by friction.

X Int. 230. How long would it stay in place held there by friction merely?

A. I have no way of knowing that.

X Int. 231. Where and when did you first meet Thomas G. Hall, the other party to this interference?

A. To the best of my recollection, about January, 1879, at Jencks' shop, corner of Centre and Hester streets, New York.

X Int. 232. You did not fully answer my question 223. I asked you whether you were sure it was on the first or second of October that you saw the nipper at 71 Broadway, at your interview with Mr. Gustam. What I wanted to know especially was whether it was upon either of those days that that visit occurred.

A. I have no memorandum of the dates. I could not swear that it was either first or second. I state the date as nearly as I can recollect.

X Int. 233. Upon your visit to New York at that time at what hotel did you put up?

A. At the Revere House, corner of Houston and Broadway.

X Int. 234. Did you go to the company's office immediately upon your arrival, before you went to your hotel?

A. I think I did. I do not remember positively.

X Int. 235. After you left the company's office that day where did you go?

A. I do not remember distinctly. I went to several places in New York. I keep no diary of each day's happenings.

X Int. 236. Did you go to the Revere House on that day?

383 A. Possibly; I do not remember; think I was there that evening. The hotel register would show that.

X Int. 237. Did you register your name there at the Revere House on the day that you called at the company's office?

A. I think I did.

X Int. 238. Who was with Mr. Hall when you first met him?

A. I remember no one, unless it might be Mr. Jencks. I have no distinct recollection of any one.

X Int. 239. Did you have an interview with Mr. Hall at that time?

A. I think we had some conversation when we first met.

X Int. 240. What was it about?

A. About the making of a nipper for a model.

X Int. 241. How long had you been at work for Messrs. J. H. Jencks & Co. before you commenced to make the model nipper for Mr. Hall?

A. I commenced work for J. H. Jencks & Co. in the month of October, 1878. This model referred to I commenced work on about January, 1879.

X Int. 242. State about what time in January you commenced to work upon that model.

A. That I could not state; their time book will tell that.

X Int. 243. I have not got their time book to put in evidence. Please to state, as near as you can recollect, what time in January it was.

A. I could not state the exact time or probably within one or two weeks of it. I should say it was within one or two weeks of the first of January, 1879. It might have been two weeks before or two weeks after; that I could not state. I do not keep my own time; never have.

X Int. 244. Then, as I understand you, you are not certain whether it was in January, 1879, or December, 1878, that you commenced to work on this model nipper that was made at J. H. Jencks'?

A. I am not certain.

X Int. 245. When did you get the model completed?

A. Near the first of February, 1879.

X Int. 246. Was it before the first of February or after the first of February that you got it completed?

A. It was about the first of February; it may have been
384 two or three days before and it may have been some time after. The company had a bill, and that would state it.

X Int. 247. Did you work at the nipper during the whole of the time, from the time you commenced it until you got it completed.

A. That I couldn't state without referring to Jencks' time book.

X Int. 248. Did Mr. Hall furnish you the parts of which the nipper was made?

A. He brought some of them himself, personally; think he sent me some pieces by a young boy, a stranger to me.

X Int. 249. I asked you if Mr. Hall furnished them; I did not ask you if he brought them himself or if he sent them.

A. I don't know who furnished them. I know he brought the pieces there—some of them.

X Int. 250. What pieces did he bring there?

A. He brought jaws, handles, and, in fact, I think he brought one of each piece that the nipper was then constructed of; possibly two of each kind.

X Int. 251. What alteration did you make in the parts or any of them that Mr. Hall furnished you to make the nipper of?

A. I made the long end of the jaw lever a trifle longer by dovetailing a piece onto the end.

X Int. 252. What was the piece that you dovetailed onto the end; was it brass or iron or steel?

A. Steel.

X Int. 253. Where is that model?

A. I do not know. I suppose the company have it.

X Int. 254. Where did you last see it, and when?

A. It was in New York, at their shop, that I last saw it. The date when I last saw it I do not remember. The model was not used.

X Int. 255. State when it was, as near as you can recollect, that you last saw it at the company's works, and state in whose possession it was.

A. As near as I can recollect it was in January, 1880. It was in the possession of no one; it was laying about the shop.

X Int. 256. Now, are you certain that you called at the company's office, No. 71 Broadway, before you saw Mr. Hall at Jencks & Co.'s, corner of Centre and Hester streets, and are you sure that you did not call at the company's office at the time you did call at the request of Mr. Hall?

385 A. I called at the company's office the October previous to my acquaintance with Mr. Hall. I also called there again some time after my acquaintance with him, at his request.

X Int. 257. Referring now to model, Johnson's Exhibit C, how long had you been in the employ of the Interchangeable Tool Company when you made this model?

A. About two or three weeks.

X Int. 258. Can you state if it were two or three weeks?

A. I cannot; I made no memorandum at the time.

X Int. 259. Which part of this model, Exhibit C, did you make first?

A. I think I made the brass handles first.

X Int. 260. After you had made the brass handles how long was it before you made the jaws or fitted the jaws to the handles?

A. Directly after.

X Int. 261. And you made them, you say, out of some old jaws which you found lying around in the shop.

A. That is what I said.

X Int. 262. After you had made this model did you then alter the model that you had made at Jencks & Co.'s so as to make the lock connection between the handles, as shown by this model?

A. I did not alter the model.

X Int. 263. Was the model not altered?

A. I made two new handles for the model.

X Int. 264. What did you make the two new handles for?

A. For the reason that Mr. Adams requested me to.

X Int. 265. Were the two new handles that you made the same as the old handles?

A. They were not after I got them completed.

X Int. 266. How did they differ from the old handles?

A. There were several teeth on each handle—two or more. Said teeth were concentric with the screw or stud on which the handle moved, these teeth to act as gears. The movement of one handle would necessitate the movement of the other.

X Int. 267. And that made a cog connection between the two handles, as I understand it?

A. That made a cog connection; yes.

X Int. 268. These two new handles, as I understand you, were fitted in the model which you made while in the employ of J. H. Jenck & Co. Is that correct?

386 A. They were fitted to that model.

X Int. 269. And was not that an alteration of that model?

A. I altered no pieces belonging with that model; these pieces were additional pieces.

X Int. 270. Then you don't consider the putting in of new handles of different shape an alteration of the model?

A. I don't consider it altering any of the parts of the model.

X Int. 271. Now, after you had the model Exhibit C made and before you put the new handles in the model you made at J. H. Jencks & Co.'s, did you make a drawing of the nipper as it was to be made with the cog connection between the handles?

A. I never did; not for the company?

X Int. 272. I did not ask you if you made one for the company. I asked you if you made a drawing. I mean, of course, a working drawing.

A. I never did, to my knowledge. I may have made sketches for my own amusement, as one will show now in evidence.

X Int. 273. After the new handles had been put in the nipper made at J. H. Jencks & Co.'s did you make a drawing of the nipper then for yourself or for the company?

A. I did; several months after.

X Int. 274. How long after?

A. Possibly four months.

X Int. 275. Was that the first drawing you made of the nipper?

A. That was the first drawing I made of the nipper.

X Int. 276. After you had completed the model Exhibit C how long was it before you put the new handles in the nipper that was made at J. H. Jencks & Co.'s?

A. That I couldn't say; it was somewhere about that time; it was something I did not think of at that time.

X Int. 277. Somewhere about what time?

A. I should say it was nearly the fore part of May, 1879.

X Int. 278. Was that done before or after the model Exhibit C was made?

A. They were all done about the same time. I could not state positively. I have no means of knowing.

X Int. 279. You made both models, it appears. Now, don't you know which one you made first? You stated upon your direct examination that Exhibit C was the first working model you
387 made of the movement of the invention. Now, was it immediately after the making of the model Exhibit C that you put the new handles into the model made at Jencks & Co.'s?

A. The model C was the first model I made embodying the invention. The Jencks model had nothing whatever to do with this case and the additions which were added to it were done as experiments, and the time of these alterations I could not positively swear whether it was before or after, but it was about the same time.

X Int. 280. Now, I ask you again whether the new handles, having cog connection between them, were put in the model that was made at Jencks & Co.'s after the model Exhibit C was made?

A. I have no means of knowing. I do not know.

X Int. 281. Did the model that was made at Jencks & Co.'s have the V-shaped spring set into a correspondingly shaped recess cut in the jaws below the throat of the nipper, as in Exhibit C?

A. I think there was some notches in the jaws that were put there at my suggestion.

X Int. 282. Was there a lip at the head of the notches, lapping over the ends of the spring, that came together as in Exhibit C?

A. No.

X Int. 283. Now, after the Exhibit C was made, when was the first completed nipper made having the cog joint between the two handles and the spring set in as in Exhibit C?

A. I think it was in the month of July, 1879.

X Int. 284. Who made that nipper?

A. It was not made by any one man. Several different parties worked on it; it was manufactured by the company on their machines and with their fixtures.

X Int. 285. How are the several parts of this nipper made—I mean the perfected nipper?

A. Made by machinery of different kinds.

X Int. 286. How are the parts originally formed before they are fitted together by machinery?

A. Some are formed by drop forging, some by being punched, other parts are made from the raw material.

X Int. 287. What parts of the nipper are made by drop forging; what parts by being punched, and what parts from the raw material?

A. The handles and jaws are drop forgings, the plates are punched, the screws are made from the rod, the springs are made from sheet metal.

388 X Int. 238. Now, what do you mean by drop forgings?

A. Pieces that receive their shape from sunken dies, said dies being put into a drop, one above and one below the other.

X Int. 289. Then, to make the jaws and the handles of these nippers, must there be a top and bottom die for each jaw and for each handle?

A. Not unless they break a die with each forging that is made in a die. There is one pair of dies for the jaws and one pair for the handles. There is a top and bottom die for the jaw and a top and bottom die for the handle.

X Int. 290. Now, after you had fitted the new handles in the model that was made at J. H. Jencks & Co.'s, did the company have a new set of dies made to make the jaws and handles of the nippers in, to correspond with the nippers with the new handles?

A. I do not know whether they made a new set or altered the old ones.

X Int. 291. Do you know whether the several parts of the nipper were made to conform in shape and size substantially to the nipper with the new handles?

A. I know nothing about what was ordered. I know nothing about that at all. That would not come under my observation. The forgings came there.

X Int. 292. I asked you if the several parts of the nipper were made to conform in shape and size to the model that was made at the shop of J. H. Jencks & Co., after you put the new handles in at the works of the Interchangeable Tool Company.

A. I don't remember whether they were or not.

X Int. 293. After the new handles had been put in the nipper of the model made at Jencks & Co.'s, did all the nippers made by the Interchangeable Tool Company have the cog connection between the two handles and the spring fitted in between the jaws, as shown by the model Exhibit C?

A. I think all the nippers manufactured by the company did have—all that were manufactured, to my personal knowledge.

X Int. 294. Now, don't you know, as a tool-maker, that the nipper with the cog connection between the handles and the spring fitted in between the jaws, as in Exhibit C, couldn't be made from the pieces or parts forged for the old nipper?

A. I don't think they could be. Of course, they could be.

389 By blacksmithing and throwing the stock out. it possibly, could be done; but it is not at all likely that it was done.

X Int. 295. Now, don't you know of your own knowledge how these nippers were made by the Interchangeable Tool Company?

A. I know how they were made—that is, the work that was done inside of their shop.

X Int. 296. Will you swear that you don't know how the forgings were made?

A. I think I will swear to that. I don't know as I ever saw one made; I mean I don't know as I ever saw a nipper forging made.

X Int. 297. Didn't you visit Colt's factory here in Hartford and give directions about the making of the dies in which this nipper was to be forged?

A. I did not.

X Int. 298. Did you never have any conference with any one in Colt's factory about making the dies for these nippers?

A. I don't think I was in Colt's factory from the time of my first connection with the company until the following February; that would be February, 1880.

X Int. 299. Do you not know of your own knowledge that to change the nipper from the plan shown by Hall's Exhibit No. 8 to the plan of Hall's Exhibit No. 10 it would be necessary to change the dies to make the handles and jaws in?

A. I should say it would.

X Int. 300. Don't you know of your own knowledge that after the model made at Jencks & Co.'s had the new handles put in that the nippers made by the Interchangeable Tool Company were made to conform to that model?

A. No, sir; they were not made to conform to that model, as I understand you mean the Jencks model after it was altered.

X Q. 301. How did they differ from that model?

A. In the first place, the handles had two or more teeth on one, three or more on the other. The shape of the jaw was entirely different.

X Int. 302. How was the shape of the jaw different?

A. It was a different shape on the inner side. I don't carry in my mind the exact shape of the jaw.

X Q. 303. If you know it was a different shape you certainly know what the difference was. Please to state how it differed.

390 A. The long end of the jaw lever was more hooking at that part where it came in contact with the handle lever.

X Int. 304. Then, as I understand you, the difference between the model made by Jencks & Co. after the handles were put in and the nipper as made by the company consisted in the fact that the Jencks model had more cogs between the handles and differed somewhat in the shape of the jaw lever?

A. The Jencks model did have more cogs between the handles than the nipper which the company after that manufactured.

X Int. 305. Please to look at the nipper, Hall's Exhibit No. 10, and state whether that is like the nipper produced by the Interchangeable Tool Company after the change had been made in the Jencks nipper.

(Question objected to as misleading to witness and as associating the finished nippers, Exhibit No. 10, with the altered Jencks model, with which it is not shown to have anything in common.)

A. This is like a nipper produced by the company some time after the alteration in the Jencks nipper. It is not like those that were produced immediately after. The die for punching the plate has been changed. The shape of the die has been changed from the style of plate they were using immediately after they commenced to turn off finished nippers.

(Objection withdrawn.)

X Int. 306. How does the form of the side plate on the nipper Exhibit 10 differ from the side plate of the nipper made immediately after the alteration was completed in the Jencks model?

A. The top of plate of Exhibit 10 is a curved line, whereas in the original plates, or those that were used immediately after the alteration of the Jencks model, the top was formed by two straight lines, one running at an angle to the other.

X Int. 307. How do the handles and jaws of the nipper Exhibit 10 differ from the jaws and the handles of the nippers produced by the company immediately after the change had been made in the Jencks model, if they differ at all?

391 A. There has been a stop-screw added to the handle in this nipper, Exhibit No. 10, since the first they constructed.

X Int. 308. How many nippers did the company make with the style of side plate that was first adopted and without a stop-screw in the handle?

A. I have no means of knowing. I do not know.

X Int. 309. How many sizes of nippers did the Interchangeable Tool Company make during the time you were in its employ?

A. They manufactured only two sizes, to my knowledge, for the market.

X Int. 310. What sizes were they?

A. I think it is what is known as the No. 2 or 5 inch and a No. 4 or 7 inch.

X Int. 311. Which did they manufacture first?

A. The first I saw manufactured was the No. 2 or 5 inch.

X Int. 312. Are not the jaws of these nippers cut out by milling tools after being forged, the milling tools being made to conform exactly to the desired shape of the jaw?

A. The jaws are milled.

X Int. 313. Are they milled as I described in my last question?

A. They are milled to fit gauges or templates.

X Int. 314. Well, what gauges and templates?

A. These mills were made from this model, Exhibit C, which is the first and only model of this sized nipper combining the patent now in interference.

X Int. 315. Then, as I understand you, in the manufacture of these nippers, first you make a model from which you make gauges or templates, then you make the milling tools and the fixtures. Is that the way you proceed?

A. That is the proper way.

X Int. 316. Is that the way the Interchangeable Tool Company made the nipper?

A. The Interchangeable Tool Company did not make the nipper in this way when they first started at Hudson street.

X Int. 317. How did the Interchangeable Tool Company make the nipper when they first started at Hudson street?

A. They started to make them before they had their gauges. What gauges were made were made after the milling had commenced, and they were very few for this sized nipper—I mean the No. 2 or 5 inch-nipper.

392 X Int. 318. Do you mean to be understood as saying that the Interchangeable Tool Company made or caused to be made the milling tools to make this nipper before it had templates made after the model nipper?

A. I mean to say that the mills were made from this model, Exhibit C. The profile of the jaw and handle was the only gauge the mills were formed to.

X Int. 319. Was there a template made of the model Exhibit C?

A. It is possible there might have been of the inside of the jaw.

X Int. 320. Is the outside of the jaw and the inside of the jaw both cut by the same milling tool?

A. They are not.

X Int. 321. Wasn't it necessary to make a template of the outside of the jaw to make the milling tool by which that was formed?

A. It was not. It was not necessary to make a template of the inside to make the milling tool by. The mills could be made from the model; as they were.

X Int. 322. Was the milling tool or tools by which the jaws of the nippers Exhibit 10 were cut made from the jaws of the model Exhibit C?

A. They were.

X Int. 323. When were those milling tools made?

A. Some time during the month of May or early June, 1879. We were quite a while on them—some weeks.

X Int. 324. Were not these jaws of Exhibit C milled by the same tools that the jaws of Exhibit 10 were milled by?

A. I filed the jaws of Exhibit C. They were not milled. It is possible after starting the mills and the fixtures I used one of these jaws to locate my cuts, and possibly the mill has touched the jaw in profile. Probably it did. It was used for that purpose. The other I think was not used for this purpose.

X Int. 325. Please to look at the jaws of this model, Exhibit C, and tell me if the marks of the milling tools are not on it as plainly almost as if it had just come out of the milling tool?

A. I know of no reason why they shouldn't be, as my previous answer would state how they came there.

X Int. 326. Was the jaw of the model Exhibit C the shape it is now when you put it in the milling fixtures?

A. Generally speaking, it was.

393 X Int. 327. How did you fasten it in the milling fixture?

A. It was fastened in the regular way, like all other work. It was a milling-machine fastening—a milling-machine vise.

X Int. 328. The jaws of this model, Exhibit D, being cut by the

milling tools formed after the jaws of Exhibit C, would make the profile of the two jaws just alike, wouldn't it?

A. It would, if it had been milled immediately after the jaw of Exhibit C had passed under the mill. I couldn't state how many months after the jaw of model C passed under the mills before the jaws of Exhibit 10 were milled.

X Int. 329. You say that you made the jaws of Exhibit C out of a pair of jaws that were in the shop at the time that you went there. Now, how was it possible for you to make these jaws out of a pair of jaws that the company had at the time you went there when, in fact, the jaws of which you say you made these were shorter than these jaws are, these jaws conforming in length to the jaw of the old nipper after you had dovetailed a piece on the long end, as you state that you did with the model at J. H. Jencks & Co.'s.

A. These jaws were made with a file, and I removed as little stock as possible from the back or outer profile of jaw, throwing all my surplus stock onto the inside. It is possible I might have heated and drawn them in the fire as they were somewhat thicker than now.

X Int. 330. Did you, in point of fact, heat them and draw them in the fire?

A. I do not know that I did. If they were deficient anywhere I do know that I used the surplus stock to make up the deficiency and probably at this time used my own judgment of which would be the proper way of utilizing this stock. By this stock I mean the surplus stock.

X Int. 331. If there was surplus stock enough in the nipper jaw to enable you to make the jaws of Exhibit C long enough, why couldn't you make the jaws that you made at Jencks & Co.'s long enough without dovetailing a piece on them?

A. For the reason that the holes on which the jaws swing were already drilled in these said jaws when I received them.

X Int. 332. Why didn't you get a pair in which the holes were not drilled?

A. I tried to.

394 X Int. 333. And couldn't you succeed?

A. I did not.

X Int. 334. To whom did you apply for a pair of jaws in which the holes were not drilled?

A. To Mr. Jencks and Mr. Thomas G. Hall.

X Int. 335. Were the holes drilled in the jaws out of which you made the jaws of Exhibit C?

A. I drilled the holes myself.

X Int. 336. Do you not know of your own knowledge that the jaws of the old nipper out of which you made the jaws of Exhibit C possessed no surplus stock, any more than was just necessary to clean it up in the milling tool?

A. In some spots it was deficient and in others there was a surplus.

X Int. 337. Did you not advise the company that they would have to throw away their old jaw dies and have new ones made to

get the necessary stock in them to make the nipper after the new pattern or model?

A. I think I did.

X Int. 338. Why did you do that in face of the fact that you found all the stock necessary to make the nipper jaw of the model Exhibit C in the old forging?

A. Because it would not be practical to do this on a large quantity; and, another reason, the jaws, in order to be milled, must have surplus of stock enough to allow the mills to go below the forging scale.

X Int 339. So you advised the company to throw away all of the stock of jaws they had on hand and have new jaw dies made so you could have plenty of material to cut away with a milling tool?

A. I think I did advise them to do this in order that they should have enough material to cut away.

X Int. 340. Who was present when you made this model, Exhibit C?

A. There were different ones present at different times while I was engaged in making it. I think Mr. J. M. Adams, Mr. E. A. Whittelsey, Mr. A. Gustam, and possibly some members of the company other than Mr. Gustam.

X Int. 341. Was Mr. Courtney present, working in the shop at the time you made that model?

395 A. He was not.

X Int. 342. Was Mr. Pope?

A. He was not.

X Int. 343. Was there any other workmen besides yourself and Mr. Adams?

A. I have stated the fact that Mr. Whittelsey was there present.

X Int. 344. Did Mr. Whittelsey see the model?

A. To the best of my knowledge and belief, he did.

Adjourned, at 4.20 p. m., to Saturday, Nov. 19th, 1881, at 9.30 a. m.

SATURDAY, *Nov.* 19*th*, 1881—9.30 a. m.

Met pursuant to adjournment.

Present: Same parties.

Cross-examination of MOSES C. JOHNSON continued:

X Int. 345. In answer to question 52 of your examination-in-chief you say there was an experiment made in the Interchangeable Tool Company's shop, which consisted in boring two or more holes in one handle of a No. 4 or 7 inch nipper and three in the other. Please to look at these Exhibits No. 3 and No. 3 X and state if you identify them as the handles in which the experiment was made.

A. I have seen such handles. There is no peculiar mark about these which would lead me to identify them as the same. Their general appearance would lead me to say they were the same handles which I had seen.

X Int. 346. Was that experiment made before or after the model Exhibit C was made?

A. I think after—about the same time. I have nothing to fix any date.

X Int. 347. Why did the company cause a rude experiment like that to be made after the model C was made?

A. I don't think the company caused it to be made.

X Int. 348. Who made it.

A. The putting in of the pins, it is possible I done it myself, or perhaps Mr. Adams done it—I wouldn't say positively—or perhaps Mr. Whittelsey done it.

396 X Int. 349. They were all there at that time, were they?

A. To the best of my knowledge and belief, they were.

X Int. 350. Why was it done at all?

A. There was not stock enough on the handles to make a cog connection of the handle material.

X Int. 351. Why was that experiment made after model C was made?

A. I have not said it was made after model C was made.

X Int. 352. Do you say it was not made after model C was made?

A. I do not remember the exact time it was made; it was about the time model C was made—perhaps a little before or a little after or at the same time. I am positively certain that it was not made at any suggestion of any member of the Interchangeable Tool Company or any of its officers.

X Int. 353. At whose suggestion was it made?

A. That I do not remember.

X Int. 354. How do you know it was not made at the suggestion of any members of the Interchangeable Tool Company or any of its officers?

A. I never remember any member of the Interchangeable Tool Company making any suggestions in relation to improving the nipper, of which there was a practical experiment made, after my employment with them in April, 1869.

X Int. 355. They left the improvement of the nipper to be made by the men in their employ, on their own motion, did they?

A. To the best of my knowledge and belief, they did. The men in their employ were left to do as they saw fit.

X Int. 356. You say in your examination-in-chief that the model Exhibit C was commenced and completed between the 10th and the 20th of May, 1879, and that the experiment with the handles, Exhibits 3 and 3 X, was made about the first of June, 1879. Do you adhere still to that statement?

A. I do not know the exact time those handles were made, Exhibits 3 and 3 X.

X Int. 357. Do you know whether or not, as matter of fact, that you did put the pins in the handles, Exhibits 3 and 3 X?

A. I do not.

X Int. 358. And you don't know who did, if I understand you?

397 A. No; I do not.

X Int. 359. And you don't know whether it was before or after model C was made?

A. No; I do not.

X Int. 360. And you don't know at whose suggestion it was done?

A. No; I am not positive.

X Int. 361. Who directed you to make Exhibit C?

A. I think I directed myself.

X Int. 362. Made it of your own motion, without direction of anybody?

A. I think I did.

X Int. 363. In the company's shop?

A. In the company's shop.

X Int. 364. In the company's pay?

A. A portion of it.

X Int. 365. Wasn't the whole of it made in the company's pay?

A. I think not; but if it had I don't see as it would make any difference as regards this case.

X Int. 366. What portion of the model do you think was not made in the company's pay?

A. I couldn't state.

X Int. 367. What did the company pay you for your services?

A. At the time model C was made I was receiving three dollars and twenty-five cents per day.

X Int. 368. Did not Mr. Adams direct you to make this model, Exhibit C?

A. I don't remember that he did.

X Int. 369. Will you swear that he did not?

A. I will not swear to that.

X Int. 370. Was not this model C made in the company's shop and in the company's pay, the property of the company?

A. I have not stated that it was made entire in the company's pay or out of material belonging to the company, and if it had been the pieces and parts themselves might have been the property of the company, but the invention was mine.

X Int. 371. Have you been in possession of this model ever since it was made?

A. I have not.

X Int. 372. In whose possession has it been?

398 A. I don't know.

X Int. 373. How much of the time has it been in your possession?

A. That I don't know.

X Int. 374. When did it come in your possession?

A. At different times.

X Int. 375. When did it first come in your possession?

A. I have no record of the time.

X Int. 376. I didn't ask you whether you had a record. I asked you when it came in your possession.

A. I don't know.

X Int. 377. Did you take it with you from the company's shop?

A. No.

X Int. 378. Who took it from the company's shop?

A. I don't know.

X Int. 379. Don't you know how you came in possession of the model?

A. I came in possession of it at different times.

X Int. 380. I asked you how you came in possession of the model.

A. I am trying to answer the attorney's questions. My previous answers would show what I know of it.

X Int. 381. None of your answers show how you came in possession of that model. Please to state how you came in possession of it.

A. I came in possession at different times.

X Int. 382. Question repeated.

A. The answer is repeated.

(Counsel for Hall gives notice to counsel for Mr. Johnson that he insists on an answer to his question, and if the witness does not answer he will move to strike out the deposition.)

(Counsel for Johnson suggests to counsel for Hall that if he will ask the witness in conformity with witness' answer, that he came into possession of it at different times, at what times, and how he came into possession of different parts of this model, he may be more successful.)

399 X Int. 383. Does the witness decline to answer?

A. I am trying to answer correctly, and will do so. Different parties gave me different parts of the model at different times.

X Int. 384. Who gave you the handles of the model?

A. Mr. Adams gave me the stock they were made of from his private property, and I made them.

X Int. 385. I didn't ask you who gave you the stock. I asked who gave you the handles.

A. No one gave me the handles. I made them.

X Int. 386. Have you been in possession of the handles ever since you made them?

A. I haven't had them in my pocket; I have known where they were—that is, I am reasonably certain that I knew.

X Int. 387. Have they been in anybody's else possession since you made them, beside your own?

A. They have been in the company's shop since I made them. I mean the Interchangeable Tool Company's shop.

X Int. 388. How long were they in the Interchangeable Tool Company's shop after you made them?

A. About one year; possibly a little less.

X Int. 389. Did you take them with you when you left the employ of the Interchangeable Tool Co.?

A. I took one of the handles with me.

X Int. 390. Which one?

A. One of the two. I have no means of knowing which of the two. It was one of those two.

X Int. 391. How did you get the other handle?

A. I think Mr. Louis Smith gave it to me.

X Int. 392. When.

A. I don't remember the month; possibly June, 1880.

X Int. 393. Was Mr. Smith then in the employ of the Interchangeable Tool Company?

A. I think he was; he told me so. I don't know positively that he was.

X Int. 394. When you left the Interchangeable Tool Company did you take the jaws of this model, Exhibit C, with you?

A. I had the jaws with me months before I left there; in my trunk.

X Int. 395. Did you keep them in your trunk and take
400 them away with you when you left the employ of the Interchangeable Tool Company?

A. They had been in my trunk for months. Of course they must have been with me where I was. They were in my trunk at that time; that is what I mean to say.

X Int. 396. How long had they been in your trunk before you left the employ of the Interchangeable Tool Company?

A. I think I put them in my trunk in July, 1879—that is, about that month. I don't remember the exact time.

X Int. 397. Did they remain in that trunk from the time you put them there until you left the employ of the company?

A. I think they did. My wife has the key to my trunk. She possibly may have taken them out.

X Int. 398. Did the pieces continue to remain in your trunk after you left the employ of the Interchangeable Tool Company?

A. I think they did.

X Int. 399. Now, as to the side piece that holds the jaws, did you have that in your trunk also when you were at work for the Interchangeable Tool Company; did you put it in at the same time, and did it continue in your trunk till after you left the employ of the Interchangeable Tool Company, to the best of your knowledge and belief?

A. I think I did put it in about the same time.

X Int. 400. And after you got the handle from Mr. Louis Smith, in 1880, you had all the parts, excepting the screws and the spring. Where did you get them?

A. I had the spring in my possession from the time I made it, which was in May, 1879. The screws, I think, I had in my trunk; put them in about the same time. I was making drawings for milling fixtures for the company, and I used these jaws for marking the outline and placing my fixture at the proper angle, &c.

X Int. 401. Did you have your trunk at the shop?

A. No.

X Int. 402. At the time you was making this model, Exhibit C, did you show it to Mr. Hall or any members of the Interchangeable Tool Company?

A. I don't remember that I ever showed any one a piece of work upon which I had worked or was working since I have been in the business, which is twenty years or more. I mean by that
401 that I have not called their attention to it. They possibly

have seen it; probably have. I am not in the habit of telling people of what I have done or am about to do.

X Int. 403. Did you call Mr. Hall's attention to the model, tell him it was your invention, and that you intended to get a patent for it?

A. I don't remember that I did.

X Int. 404. Did you call the attention of any member of the company to the model, claim it as your invention, and state your intention of applying for a patent for it?

A. I don't think I called the attention of any one to the model.

X Int. 405. How many nippers were made by the Interchangeable Tool Company from the plan of model Exhibit C during the time you was in the employ of the company?

A. I have no means of knowing that fact.

X Int. 406. Didn't you state that about thirty thousand had been made in your preliminary statement in this case?

A. I don't remember that I did.

X Int. 407. Well, don't you know about how many were made during the time you were in the employ of the company?

A. I do not of my own knowledge. I know there were several thousand; how many I could not say.

X Int. 408. During the time you were in the employ of the company how many nippers were made upon the plan of Hall's Exhibit No. 8?

A. I don't remember of any.

X Int. 409. Please to take Exhibit B and read the letters and figures on the side of it upon which the pencil sketch is made, so that the notary can write it down—the whole of it.

A. Room No. 177, October 10th, 1878. Mr. M. C. Johnson, Dr. To room rent, one week, to date, 3.50. Washing, carriage, expressage. Received payment, T. J. Coe & Son, per Utley. Johnson's Exhibit B, H. E. T., N. P.

X Int. 410. Is there a sketch in lead pencil on the side of the exhibit you have been reading illustrating the invention embraced in the model Exhibit C?

A. There is a sketch of a portion of the model Exhibit C. This sketch does not embrace the whole invention.

X Int. 411. What parts of the invention does it embrace?

A. The tooth-and-notch connection between the two handles.

402 X Int. 412. Doesn't it illustrate the spring in between the jaws?

A. I think there is a spring between the jaws.

X Int. 413. Doesn't it show the lips at the head of the spring lapping over the upper ends of the spring?

A. I don't know that it does; think not.

X Int. 414. Please to look at it and see if it doesn't.

A. It does not. It was intended to represent a pin passing between the two jaws above the spring.

X Int. 415. Was this intended to be a sketch of the whole nipper with your alleged improvement applied to it?

A. It was not.

X Int. 416. What was it intended to represent?

A. It was intended to represent a movement by which the two cutting jaws would approach one another at a uniform speed.

X Int. 417. When did you make this sketch?

A. I don't know the exact date. It was made on a card which I had in my pocket, and, to the best of my knowledge and belief, it was made in October, 1878.

X Int. 418. Did you show it to any one at the time you made it?

A. I wouldn't swear positively that I did.

X Int. 419. To whom did you show it, if to any one?

A. I should say to Mr. O. D. Woodbury. As I have said before, I am not in the habit of showing what I am doing or going to do.

X Int. 420. Do you recollect showing it to any one else?

A. I have no recollections; it is possible the hotel clerks might have seen it.

X Int. 421. What hotel clerks do you refer to?

A. The Revere House; Mr. Utley or Mr. Carter.

X Int. 422. Is this exhibit made on one of the cards of the Revere House?

A. It was made on a card given me by a clerk at the Revere House.

X Int. 423. Doesn't this card upon its face purport to be the card of the Revere House, situated at the corner of Houston street and Broadway, in the city of New York?

A. Let me see the card. (After looking at it:) It does.

X Int. 424. Who is Mr. Charlie Church?

A. He was a draftsman for the Pratt & Whitney Company, here in Hartford.

403 X Int. 425. Is he there now?

A. I think not.

X Int. 426. When did you tell Mr. Charlie Church that you were the inventor of the invention in controversy?

A. I don't know that I have stated that I did tell him that I was the inventor, in so many words. I have stated that I had conversations with him in relation to the nipper, and it was upon a visit of his to the city of New York.

X Int. 427. Did you have more than one conversation with him upon the subject of the nipper?

A. I think I have.

X Int. 428. In those conversations did you claim to be the inventor of the nipper?

A. I don't know that I did, in so many words. He could tell that, possibly.

X Int. 429. Was that before or after you left the employ of the Interchangeable Tool Company?

A. It was before and after also.

X Int. 430. Give the dates of the respective conversations as near as you can.

A. One of the conversations was while I was in the employ of the company at Hudson street, New York; the month or date I

don't remember. I have met him several times since, the dates of which I don't remember.

X Int. 431. What did you say to him upon the subject of the nipper?

A. I don't remember the exact conversation. We talked together as two mechanics naturally would at meeting, one asking the other what he was about in his business, &c.

X Int. 432. When did you claim to Thomas Thompson to be the inventor of the invention in controversy?

A. I should say about April, 1880.

X Int. 433. When did you claim to Samuel Moore to be the inventor?

A. Possibly about the same time. I think a little earlier than April, 1880.

X Int. 434. When did you claim to Mr. F. A. Pratt to be the inventor?

A. Mr. F. A. Pratt, in my presence, asked Mr. J. M. Adams,
404 at the Interchangeable Tool Company's shop in Hudson street, whose idea this improvement of the nipper was. Mr. Adams told him (Mr. Pratt) that he supposed it belonged to Carlyle, that being one of my Christian names.

X Int. 435. How many times were you in the employ of the Interchangeable Tool Company?

A. Two.

X Int. 436. Were you first journeyman, then foreman, then journeyman again?

A. Think I was.

X Int. 437. How did you come to leave the employ of the Interchangeable Tool Company?

A. I was discharged by Mr. Thomas G. Hall, who then was president of the company.

X Int. 438. Why was you discharged?

A. I couldn't tell that.

X Int. 439. Why did you leave the employ of the Frary Cutlery Company?

A. For the reason that Mr. J. B. Secor would pay me more money.

X Int. 440. Why did you leave the employ of Mr. Secor?

A. For the reason that my family were residing in Milford. Mr. Secor's shop being in Bridgeport, I had nine miles to ride each day on the cars. I thought it would be better to be nearer my business than what (where) I then resided; not being particularly fond of the city of Bridgeport, I thought it would be best to move to the city of Hartford.

X Int. 441. Why did you leave the employ of Mr. Dwight Slate?

A. To engage in business for myself. Mr. Slate would like to have me remain with him.

X Int. 442. Referring again to the model made by you at the shop of J. H. Jencks & Co., in which you afterwards put a pair of new handles, did you make those new handles from forgings then in the possession of the company?

A. I think I did.

X Int. 443. How did you get the necessary material on the inside of those handles opposite the fulcra to make the gearing connection?

A. I think I obtained it by the use of a hammer, to place the material in the proper place to form the teeth or cogs.

405 X Int. 444. Wasn't there a piece of metal brazed on the inside of the handle in which the gearing was made?

A. There was not.

X Int. 445. During the time you was in the employ of the company did you utter any protest to it or any of its officers against its use of the invention in controversy?

A. I do not know that I did. I felt safe, knowing the fact that I was allowed two years.

X Int. 446. During the time that you was in the employ of the company, as I understand it, you made this model, nipper C, and assisted in making the milling tools and milling fixtures necessary to make the nipper, and afterwards assisted in making a great many nippers for the company. Is that correct?

A. Generally speaking, it is.

X Int. 447. Did you ever ask the company for any compensation for the use of the invention, or did you offer to sell it to them?

A. I never offered to sell it to them, to my knowledge; don't know that I ever asked them for any compensation. Knowing it to be my property, the proper opportunity for selling had not presented itself.

X Int. 448. When did you first show Mr. Henry G. Thompson the Exhibits B & C?

A. I couldn't state when I did. I do not know.

X Int. 449. Are the drawings you mentioned in your examination-in-chief the only ones you made for the company?

A. To the best of my knowledge and belief, they are.

X Int. 450. How long have you known Mr. A. Gustam?

A. I first met him about October 2d or 3rd, in the year 1878.

X Int. 451. Is his name Gustam or Guttstam?

A. That I don't know. I have seen his signature, Gustam. I don't (know) what his name is.

X Int. 452. What is his general character?

A. I know nothing of that at all. All I have heard is in his favor. Mr. Amos Whitney, of the Pratt & Whitney Company, spoke of him very highly to me.

X Int. 453. When did Mr. Whitney speak highly of him? How long since?

A. Some time in the early summer of 1881.

X Int. 454. Is Mr. Gustam a member of your company, the Hartford Duplicate Machine Tool Company?

406 A. He is not.

X Int. 455. Was he ever a member of that company?

A. He was.

X Int. 456. How did he come to be disconnected from the company?

A. I purchased his entire interest.

X Int. 457. Isn't it true that you and Mr. Brower discovered that he was a bad man, and that you put him out of the company?

A. It is not true that we put him out. I purchased his interest myself personally and paid him the money.

X Int. 458. Did Mr. Gustam hold any office in the company as it was originally organized?

A. He did; he was elected president.

X Int. 459. Did you afterwards discover any errors in his accounts?

A. I had nothing to do with the accounts or financial affairs.

X Int. 460. Do you know anything against Mr. Gustam's integrity and truthfulness?

(Question objected to by counsel for Johnson on the ground that Mr. Gustam has not been presented for examination as a witness in this case, and that it is only admissible to prove, even if he were, facts as to his general character and reputation and not specific facts as called for by the question.)

A. I know nothing special against his character. I do not think he is infallible.

X Int. 461. Have you not told any one within a month that he was a fraud and had swindled your company?

A. No.

X Int. 462. Is your new company, "The Hartford Duplicate Machine & Tool Company," of which you are now the superintendent, making preparations to manufacture the nipper described in your patent of October 5th, 1880?

A. No.

Cross-examination closed.

407 Redirect examination:

R. D. Int. 463. You have been asked various questions in your cross-examination with regard to parties with whom you might have had conversations relative to your invention, or who had approached you with a view of becoming possessed of your rights. Have you ever been approached by any of the members or officers of the Interchangeable Tool Company or their agents with a view to becoming possessed of your right to the invention in controversy in this interference?

A. I think I have.

R. D. Int. 464. Please state when, where, and by whom you have been so approached, and the circumstances, as near as you can recollect them.

A. I was approached in the city of Hartford by a man who claimed to be acting in the interests of the Interchangeable Tool Company, who wished me, in consideration of a sum of money, to sign certain papers which would virtually make my invention the property of the Interchangeable Tool Company. The time was about May 7th, 1881; possibly a day or two before. This man's

name was Prescott; I do not know his whole name and can't give it. I think his initials are F. A.

R. D. Int. 465. What sort of a paper did he wish you to sign?

A. I made a copy of the paper at the time and showed it to other parties, Mr. Samuel D. Chamberlin for one, Mr. Theodore G. Ellis for another, and I have a copy of the paper, which I can read and put in evidence. I showed both of these parties the original paper. I think also Mr. A. Gustam saw this paper.

R. D. Int. 466. Did you or did you not look upon the offer of a sum of money for signing this paper as a bribe to do a dishonorable action against the rights of Henry G. Thompson, the alleged owner of your patent?

A. I did look upon it as a bribe.

R. D. Int. 467. Did you sign that paper?

A. I did not.

Redirect examination closed.

408 Recross-examination:

R. X Int. 468. How much money did Mr. Prescott offer to give you?

A. He offered to give me two hundred and fifty dollars, and thought he might make it five hundred.

R. X Int. 469. Did he tender you the money?

A. He did not; no.

MOSES C. JOHNSON.

Subscribed and sworn to this 19th day of November, A. D. 1881, before me—

HENRY E. TAINTOR,
Notary Public.

Adjourned to Nov. 28th, 1881, 10 a. m.

MONDAY, *Nov. 28th*, 1881—10 a. m.

Met pursuant to adjournment.

Present: Same parties.

MOSES C. JOHNSON, witness for Johnson, reproduced for further cross-examination:

R. X Int. 470. Referring to Hall's Exhibits No. 3 and 3 X, state whether during the time you was in the employ of the Interchangeable Tool Company you made any nipper or nippers upon the plan of these exhibits. I mean with a gear connection between the handles, consisting of pins set in the handles opposite their fulcra—I mean, of course, completely finished nippers.

A. I don't know that I did.

R. X Int. 471. Do you recollect whether any nippers were made of that kind during the time you was in the employ of that company?

A. I recollect of seeing such nippers.

R. X Int. 472. Who made them?

A. I couldn't say who did put the pins in the handles.

R. X Int. 473. How many were made?

A. That I don't remember.

R. X Int. 474. Was there more than one pair of nippers of that kind made there?

409 A. I don't remember; possibly there might have been.

R. X Int. 475. When were they made?

A. I don't remember the date.

R. X Int. 476. Was it before or after making of the model Exhibit C?

A. I don't remember. I think about the same time.

R. X Int. 477. What size of nipper was it?

A. I think it was what was known at that time as the 7-inch.

R. X Int. 478. Can you swear that there was more than one pair of such nippers made?

A. I cannot.

R. X Int. 479. Will you swear that you did not make them yourself—put the pins in the handles that formed the connection between their fulcra?

A. No; I will not; possibly Mr. Adams, Mr. Whittelsey, or myself.

R. X Int. 480. By whose direction were those nippers made?

A. I don't know; don't remember; possibly I suggested it.

R. X Int. 481. Do you swear that you did?

A. No.

R. X Int. 482. Did the nippers referred to have the spring set in between the jaws, in a recess, having a lip projecting over the upper end of the spring?

A. I don't remember much about the nipper other than the pins.

R. X Int. 483. State, if you know, where that nipper is.

A. I do not.

R. X Int. 484. State when you last saw it.

A. I think in the summer of 1879.

R. X Int. 485. Where did you see it?

A. In the company's shop in New York.

R. X Int. 486. How many pins were put in the respective handles of that nipper opposite their fulcra to form the gear connection?

A. To the best of my recollection, I should say three in one and two in the other.

MOSES C. JOHNSON.

Subscribed and sworn to this 28th day of November, A. D. 1881, before me—

HENRY E. TAINTOR,
Notary Public.

410 STATE OF CONNECTICUT, } ss:
County of Hartford, }

At Hartford, in said county, on the 28th day of November, A. D. 1881, before me, personally appeared the above-named Moses C. Johnson and made oath that the foregoing deposition by him subscribed contains the truth, the whole truth, and nothing but the

truth. The said deposition is taken at the request of Moses C. Johnson, at the time and place named in the notice hereto attached, to be used upon the hearing of an interference between the claims of Thomas G. Hall and those of the said Moses C. Johnson, before the Commissioner of Patents, on the 16th day of February, A. D. 1882.

The said Thomas G. Hall was duly notified, as appears by the original notice hereto annexed, and attended by Amos Brodnax, Esq., his counsel.

Witness my hand and official seal, at said Hartford, this 29th day of Nov., A. D. 1881.

[SEAL.] HENRY E. TAINTOR,
Notary Public.

411 NEW YORK CITY, TUESDAY, *December* 6, 1881—10 a. m.

Met pursuant to agreement.

Present: Same counsel as before.

AUGUSTUS GUSTAM, a witness produced on behalf of Johnson, being duly sworn, testifies as follows:

Int. 1. What is your name, age, residence, and occupation?

A. My name is Augustus Gustam; my age is 30 years; my residence is 64 Grove St., Hartford, Connecticut, and at present have no regular occupation.

Int. 2. Have you at any time been connected with the Interchangeable Tool Co. of New York and of Milford, Conn.? If you have, please state when you first became connected with the said company and when you finally left it.

A. I have; first became connected with the company at its organization and remained so until about the month of June, 1881.

Int. 3. Please state to the best of your recollection, giving dates, what was your position, connection, and occupation with the said company.

A. Secretary and general agent until about January 1, 1880, commencing with the organization of the company (about the month of August, 1878); then general agent only from about January 1, 1880, until about the month of October, same year; then secretary, general agent, attorney, and treasurer until some time, I think, in the month of June, 1881.

Int. 4. Did Mr. Moses C. Johnson call to see you at any time for the purpose of being employed by the said company while it was located in New York? If he did, please state when you first saw him, and the circumstances connected with it.

A. He did. About the month of October, 1878, at the then office of the company, 71 Broadway, stating that he had been recommended to me by Mr. Matthew Dimond, of Hartford, Conn., in response to a letter received by Mr. Dimond from me, asking him to recommend me a good, skillful mechanic, capable of taking entire charge of the work in the shops of the Interchangeable Tool Co., and getting up what tools were necessary for the perfect manufact-

ure of our cutting nippers and such other tools as we might have.

412 Int. 5. Who at this time had charge of the mechanical operations of the company?

A. Mr. Thomas G. Hall, our president, and one Crane.

Int. 6. At the time you mention, when you were called upon by Mr. Moses C. Johnson, did you show him any of the tools manufactured or intended to be manufactured by the Interchangeable Tool Co.? If you did, state what they were.

A. I cannot state positively whether I did or no, but if I did it must have been a model of the cutting nipper made for us by Mr. Crane.

Int. 7. Describe that model as near as you can.

(Question objected to on the ground that it doesn't appear that he showed Mr. Johnson any model.)

Answer waived.

Int. 8. Did you or did you not have in your possession at that time any model or tools manufactured by the Interchangeable Tool Co.? If you did please describe what they were.

A. As a general thing, I carried in my possession the model made by Crane to exhibit its virtues to different parties for the sake of inducing them to invest capital in our concern.

Int. 9. Please describe that model as near as you can.

A. As near as I can remember, it was like Hall's Exhibit No. 8, except that there was no brass block confined by a screw in about the centre of the case composed by the side plates held by screws; nor was the pin between the jaws, as shown in this exhibit, but there was a pin running through two holes drilled in the uppermost part of the plates and intended to keep the jaws from coming together sufficiently to mar the cutting edges. The holes were then in the model nipper where the upper part of the plates in this exhibit shows two slots. In speaking of two holes and two slots I mean one in each plate.

Int. 10. State, if you know, whether or not any nippers were made for sale after this model.

A. There were a great many of them made; several hundreds.

Int. 11. Do you know the circumstances relating to the manufacture of a model by Jencks & Co., of New York, for the Interchangeable Tool Co.?

413 A. I do.

Int. 12. State why it was made, who made it, and about the date it was finished.

A. After several nippers had been made at the company's shop, at Harlem, and finding that they would not work satisfactorily, owing to the want of some different arrangement of the parts, and meeting with considerable opposition from Mr. Hall in my interference with his management, I went to the shop of Messrs. Jencks & Co., where I had about the following conversation with Messrs. Jencks and E. P. Bullard, his copartner: "Gentlemen, here is a nipper that we have been trying to make and which I know to be a

good thing if put in proper shape—that is, to have the parts arranged so that the cutting jaws will not overlap and crop off the cutting edges when being used for cutting wire. Now, then, if you will go to work and remodel this, making it perfect and so that it will work positively, I will pay you for such work out of my own pocket. Mr. Hall must not know of this until the job has been done. Then, perhaps, I can convince him of that which he now denies." Then followed some other conversation in about the same strain. Afterwards, by some means, Mr. Hall discovered what I had ordered, went to Jencks & Co., and gave them positive instructions as to how the nipper should be made. The nipper which was afterwards delivered to us by Jencks & Co. was made partly by Moses C. Johnson, who first worked on it in their shop, and completed, I think, by one Smith, Smith and Johnson being then in the employ of Jencks & Co. This nipper was delivered to the company, I think, in the month of January, 1879. The company's records must show the exact date if they have not since been tampered with.

Int. 13. Describe this Jencks model, stating what it was as near as you are able.

A. The tops of the jaws were slightly flatter and the tops of the plates were cut on a circle. The inner lever arms of the jaws had been spliced out, as the parts given by Mr. Hall to Jencks & Co. were, I believe, deficient in stock. Instead of screws holding the different parts together smooth pins were used. I think the brass block mentioned in the original model had been left out, but am not positive. That, as near as I can recollect, is about the only difference, as I have not seen this model for about 2 years.

Int. 14. State, if you know, whether any nippers were manufactured for sale after this model.

414 A. I think none.

Int. 15. Are you acquainted with what was done in the shop of the Interchangeable Tool Co. subsequent to the making of the Jencks model with reference to the farther improvement of the company's nippers? If you are, state, generally, what took place.

A. Shortly after the company's shops had been removed to Hudson St. the company run out of funds, and at several caucuses held by the different members of the company it was decided that some change must be made in the management of the shop, and that as there was no money forthcoming to pay Mr. Hall nor myself it would be well, perhaps, for me to look around and see what could be done to put the concern on its legs and start it up in good shape. Our then treasurer, Mr. Oliver, informed Mr. Hall that perhaps he had better go back to his old trade for awhile. I was to go to Hartford, secure proper help, buy what machinery was necessary to manufacture these nippers on the interchangeable system on the best terms that I could, but always without cash. Before going to Hartford I saw Mr. Adams, whom I engaged as foreman of the shop, or superintendent of the shop; went with him to Hartford, where we purchased such machinery and tools as Mr. Adams said were absolutely necessary to the proper manufacture of the nipper. In my conversations with Mr. Adams he expressed himself to the effect

that the nipper as it then was was useless; that it would be better to throw the parts as then constructed entirely aside and remodel the whole thing. On our return to New York we had several discussions as to how to make the motion of the cutting jaws positive, and experimented somewhat thereon, but not successfully. About this time, the middle of April, 1879, Mr. Adams hired Moses C. Johnson and Albert Whittlesey as tool-makers and machinists. They had several conferences together, Mr. Hall being present at several, and at which Mr. Hall suggested that the only way to make that nipper work perfectly was by drilling 2 holes in the jaws just above the fulcrum points and inserting a wire between and into them, somewhat as shown in the wire inserted in the jaws in Hall's Exhibit No. 8, asserting at the time, though the mechanical theory was incorrect, it would work in practice. As, however, Mr. Hall's power at that time could not override Mr. Adams' position as foreman, the nipper thereafter made and perfected by Moses C. Johnson, to the best of my belief, was the one manufactured and
415 now the question of this interference, always excepting some few slight changes which were made from time to time, but which do not affect any of the questions in this interference.

(Answer objected to on the ground that it's irresponsive, impertinent, and immaterial upon any issue in the controversy.)

Int. 16. State how much of the time during the months of January, February, March, April, and May, 1879, you were at the office of the Interchangeable Tool Co., and how frequently you visited the shop, especially during the latter part of said time.

A. While the office and the shop was in the same building, in Hudson St., my time from about 8 or 9 in the morning until 5 or 6 in the evening was mostly spent between the shop and the office; probably as much in one as the other. This embraced, I think, most of the time mentioned in the question; the latter months, at any rate.

Int. 17. State, if you know, about how much of the time during the same period Mr. Thomas G. Hall was present in the office or shop.

A. The greater part of the time during the months of January, February, and March.

Int. 18. How much of the time was Mr. Hall present in the shop or office during the months of April and May, 1879?

A. Very little, especially after the first part of April, as his visits then being sometimes several days apart, then only for a half hour or an hour at a time; on two or three occasions perhaps two or three hours.

Int. 19. During the months of April and May, 1879, did or did not Mr. Hall's position in the company admit of his giving any directions or have any supervision of the mechanical work of the company?

A. It did not.

Int. 20. I will read to you what is stated as the subject-matter of this interference as stated in letter from United States Patent Office

of June 4, 1881. "The subject-matter of the interference is the body composed of the side plates, the independent fulcra for the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips, and the hand levers having short arms and a
416 prong and notch always in engagement combined with the V-shaped spring held by the lips of the jaw levers." State, if you know, whose invention that combination was.

A. I firmly believe that combination to have been that of Moses C. Johnson.

Int. 21. Have you at any time seen a model made by Moses C. Johnson embracing these improvements? If you have state when and where you saw it.

A. I think I saw such a model made by him at the company's shop, 57 and 59 Hudson St.

Int. 22. Please look at the model I now show you (witness shown Johnson's Exhibit C) and state whether you recognize it or not and what it is.

A. As near as I can recollect, this is the model that I was shown by Johnson, or it may have been shown me by Mr. Adams, at the shop of the company at Hudson St., and recognize it as embracing the points just read from the Patent Office letter.

Int. 23. About when did you first see that model?

A. I think I saw this model early in May, 1879. It may have been in the latter part of April.

Int. 24. At the time that you first saw this model was there any conversation between you and other parties as to who was the originator and inventor of the improvements shown in this model not existing in the previous nippers of the company?

A. I think I had some conversation with Mr. Whittlesey, during which he said that Carlyle's nipper (meaning Moses C. Johnson) was the only way for it to be made. I may have had some conversations with Mr. Adams about it, and I think Mr. Hall was in the shop about the time or after it was shown me, at any rate, and I believe expressed his approval of it as a good idea, and also saying that the "stop" to prevent the cutting edges from coming together being in the handles, and the jaws each travelling on an independent fulcrum, that when pressure was put on the handles in order to cut anything placed between the cutting edges of the laws, as soon as such article was cut, the momentum attained by the jaws would be so great they would keep on revolving and crush each other, or words to that effect. Mr. Oliver, our then treasurer, coincided with Mr. Hall on the momentum question.

417 Int. 25. Who, if any one, was generally acknowledged in the shop to be the inventor of the improvements shown in Exhibit C?

A. Moses C. Johnson.

Int. 26. Please examine the two nipper handles which I now show you (witness is shown Hall's Exhibit No. 3 and 3 X) and state if you know what they are and by whom they were made.

A. They are a pair of handles belonging to what we call our "No. 4" or "7-inch nipper." The wires inserted in the handles, 3 of

which are broken out now, were placed there to make the motion of the cutting edges of the jaws positive. I think those handles, at least the insertion of the pins, was done by Mr. Adams, or it may have been myself, as I recollect having drilled several such, but do not now remember for what purpose I drilled them. The handles shown me had the pins inserted, I think, to make a model nipper for exhibition for Messrs. Frasse & Co., but am not quite positive about that latter part. If I had time could find out positively.

Int. 27. State, as near as you can, the dates between which the several handles with pins inserted, which you mentioned in your previous answer, were made.

A. I should say between the first of June and the first of October or November.

Int. 28. Did you know of any other experiments with geared handles made in the shop of the Interchangeable Tool Co.?

A. I think Mr. Adams inserted pins to act as gearing in the handles of some of our smaller-sized nippers, but for what exact purpose I now cannot say. I do not know.

Int. 29. Are you acquainted with the circumstances relating to the obtaining of a French patent for an improved nipper for the Interchangeable Tool Co., taken out in the name of Thomas G. Hall? If you are please give a statement briefly of the circumstances.

A. The application for the French patent was made out in the office of Munn and Co., and left there until such time as the company should send them the money to pay and apply for the same. I don't remember the dates exactly, but when I received the money to make such application I delayed doing so until I could get a perfectly made nipper as made by Johnson. When I got one I
418 took it to the office of Munn and Co. and gave it to Mr. Walker in that office, with positive instructions to change the drawings from that of the United States patent to that of the nipper I then gave them.

Int. 30. What United States patent do you refer to in your foregoing answer?

A. The patent granted to Thomas G. Hall for improved cutting nippers; I think dated November 5th, 1878.

Int. 31. Did or did not Mr. Hall know of your having changed the invention set forth in the French patent from that shown in his patent of 1878 to that shown in Johnson's improved nippers?

A. I don't think he did.

Int. 32. Did you do this of your own accord, without directions from any one?

A. I did.

Int. 33. State, to the best of your recollection, when it was when you first informed Mr. Hall that you had substituted Johnson's invention for his in the French patent.

A. It was some time between the 1st of June and the 1st of Sept., at my residence, at Milford, Ct., which was in 1880, when there were present of the company Messrs. Hall, Wm. Q. Judge, J. F. Oliver, and myself. I mentioned the fact at the time to show them

that I had been active in the interest of the company, and that I had never been in league with Mr. Thompson or Mr. Johnson.

Int. 34. There has been put in evidence in this controversy an extract from the minute book of the Interchangeable Tool Co., on the date of October 7th, 1879, as follows:

"On motion of Mr. Harris, it was resolved that the secretary be instructed to apply immediately for a French patent on the Hall nipper, and as soon as practicable for the Belgium and Swiss patents."

Were you present when that resolution was passed?

A. I think very likely I was.

Int. 35. State, if you know, what nipper was meant by the "Hall nipper" in that resolution.

A. Well, at the time or some time afterwards I stated to Mr. Hall that I thought it would be necessary for him to come up to Munn & Co.'s office in order to sign and swear to the application, to which he replied that it would be altogether unnecessary, as the proper papers had been drawn and signed for the French, German,
419 and English patents at the same time that he had made his application for the United States patent.

Int. 36. Do you remember a visit of Mr. F. A. Prescott to Hartford some time in the early part of this year, and for what purpose he said he came to Hartford? If you do, please state the circumstances as near as you recollect them.

(Counsel for Hall objects to the question as incompetent, irrelevant, and immaterial.)

(Counsel for M. C. Johnson states that he asks this question for the purpose of showing a connection between the matter now in controversy and efforts of one of the parties, through his authorized agent, to become possessed of the invention.)

(Counsel for Hall replies that what Mr. Prescott said is not evidence in any sense.)

A. I accompanied Mr. Prescott up to Hartford at his solicitation. Upon our arrival there we proceeded to the house of one of my relatives, where we remained over night. The following morning I proceeded to the shop where Mr. Johnson was employed and there obtained his signature to certain private contracts relating to a shear Co. Mr. Prescott then invited Mr. Johnson and myself to dine with him, and during the meal and afterwards had certain conversations with Johnson as to when and in what capacity he had been employed by the Interchangeable Tool Co. We spent some two days together; part of the time all three of us, part of the time Prescott and Johnson alone, and part of the time Johnson and myself alone. Prescott informed me that he had slipped a $5.00 bill into Johnson's hands to recompense him partially for his lost time, and asked me whether I thought a hundred dollars wouldn't make Johnson feel like signing a little paper which would not compromise Johnson in any way nor be seen by any one except a certain party in Washington, and which would be the means of his immediately getting an order of interference in the Hall nipper case; to which I an-

swered I didn't know, but thought it would be of no use. He then wished me to use my endeavors with Johnson to get such papers signed. On my telling him it was necessary for me to go
420 home, as I had no money, he asked me whether I would not wait over for another day if I could make twenty dollars by it, at the same time handing me the twenty dollars, which I accepted, he saying that I might consider that on account of what he owed me for moneys that I had previously loaned to him. He had that day received a check by mail from New York, which he had cashed at the office of a friend of mine. He made the remark that when he started out for a thing he never gave up, and that he would not leave Hartford till he got what he wanted from Johnson, if, I think he said, it took him six months. Johnson finally accepted a a paper from him, which after submitting to some parties he signed. We then returned to Milford together.

Int. 37. Did or not Mr. Prescott offer you any sum of money to use your influence with Mr. Johnson to induce him to sign a paper relating to the invention now in controversy?

A. I am pretty sure he did, but I don't remember the amount.

Int. 38. Do you remember a visit made by yourself, with Mr. Prescott and Mr. Johnson, to the office of T. G. Ellis, Esq., in Hartford, Ct., in which a paper drawn up by Mr. Prescott for Mr. Johnson to sign was shown to T. G. Ellis, Esq.?

A. I do, well.

Int. 39. Do you remember what Mr. Ellis said to Prescott on reading the paper?

A. As near as I can recollect, Mr. Ellis said that if any one were to bring him such a paper to sign he should be very suspicious of it and think that some trick was intended.

Int. 40. Will you please examine the minute book of the Interchangeable Tool Co. under October 7th and say whether the resolution ordering foreign patents for the Hall nipper is in your handwriting?

A. It is.

Int. 41. Did you keep that minute book yourself?

A. I did.

Int. 42. Is it in the same condition as it was when it left your hands?

A. No, sir.

Int. 43. State generally, without entering into particulars, in what it differs.

A. From the time it left my hands, on the 17th day of Febr'y, 1880, the entries are made by other parties and not by me.

421 Int. 44. Will you please examine this circular and say what it is?

Witness shown Johnson's Exhibit A.

A. It is a circular the company issued to the trade, intended to show the outer appearance and mechanical movement of the nipper and the prices at which the different sizes would be furnished.

Int. 45. Give the date, as near as you can, when this circular was first printed.

A. I think it was some time in the spring of '79.

Close of the direct examination of the witness.

Cross-examination of the witness by AMOS BROADNAX, Esq., counsel for Hall:

X Int. 46. Are you a citizen of the United States?

A. If the fact of my father being a citizen and my having been in this country since I was under fifteen years of age constitutes citizenship, then I am.

X Int. 47. Of what country are you a native?

A. Scotland.

X Int. 48. At what age did you come to this country?

A. Under fifteen years.

X Int. 49. How much under 15?

A. I think about a year.

X Int. 50. Then you were between fourteen and fifteen years old when you came to this country?

A. I think so.

X Int. 51. Is your father a naturalized citizen of this country?

A. I believe he is.

X Int. 52. Do you know whether he is or not?

A. I remember very well his applying for his naturalization papers, and have heard him say that he was proud that he was a citizen of the finest country in the world—meaning the United States.

X Int. 53. Where was your father naturalized?

A. In New York city.

X Int. 54. When?

422 A. It was before I was 18 years of age.

X Int. 55. How long before you were 18 years of age?

A. I don't know; it might be a year, it might have been two, it might have been 3 years.

X Int. 56. Where does your father reside?

A. Part of the time in Brooklyn and part of the time in Hartford.

X Int. 57. Whereabouts in Brooklyn does he reside?

A. I don't know that he is residing in Brooklyn at this moment.

X Int. 58. Has your father a residence in Brooklyn?

A. I decline to answer.

X Int. 59. What is your father's name?

A. Israel Gustam.

X Int. 60. How does your father spell his name—I mean his surname?

A. I decline to answer that question.

X Int. 61. Does not your father spell his name Guttstam?

A. I can't say that he does.

X Int. 62. Do you know whether he does or does not?

A. I shall say nothing more about my father, but shall refer to

Mr. Thomas G. Hall for any information in regard to him that may be necessary to this case.

X Int. 63. Are you in the habit of voting in this country at general elections?

A. That can be found out by examining the registration book.

X Int. 64. Question repeated.

A. No, sir.

X Int. 65. Are you a stockholder in the Interchangeable Tool Company?

A. I think I am. I do not know for how much and couldn't tell positively without hunting through all my old papers and getting the information from the secretary of the company.

X Int. 66. Do you know whether or not there is any stock standing in your name on the books of the Interchangeable Tool Company?

A. I think there is, but could not swear positively to it. In May, 1880, the secretary's statement of stockholders showed 25 shares to my credit.

423 X Int. 67. Have you transferred any of that stock since to anybody; and, if so, how much?

A. I think I have; it may be all of it.

X Int. 68. Have you any official relations with the company now?

A. No, sir.

X Int. 69. What were your duties as agent of the company?

A. To buy all their stock and supplies, sell their manufactured goods, to attend to the general outside business.

X Int. 70. How were you appointed agent to the company?

A. By the board of directors, at one of their meetings.

X Int. 71. Did the resolution of the directors appointing you agent of the company define your duties in a general way?

A. My impression is that they did.

X Int. 72. Is that resolution of record in the minute book of the company?

A. I think it is.

X Int. 73. Were you secretary of the company at the time the resolution was passed?

A. I think it was while I was secretary of the company; it may possibly have been subsequent to that time.

X Int. 74. Were you one of the directors of the company?

A. I was.

X Int. 75. At the time that resolution was passed?

A. I was.

X Int. 76. And had you been such director since the organization of the company?

A. I had.

X Int. 77. When did you cease to be director?

A. I think it was in the month of June, 1881.

Adjourned to December 7th, 1881, at ten o'clock a. m.

424 WEDNESDAY, *Dec.* 7, 1881—10 o'clock a. m.

Parties met pursuant to adjournment.

Present: Same parties.

Cross-examination of AUGUSTUS GUSTAM by counsel for Hall continued:

X Int. 78. Didn't you attend a meeting of the board of directors of Interchangeable Tool Co. and participate as a director on or about July 5th, 1881?

A. I can't tell the exact date, but I know it was somewhere about the end of June or beginning of July that, I think, I attended the last meeting.

X Int. 79. How did you terminate your relation with the company as director?

A. I think that it was at the last meeting that I attended there that a motion was made to reduce the number of the board of directors, and from the general tenor of the conversation, feeling that my room was preferred to my company, I attended no more, but learned that their new board, elected on their annual election, left my name out.

X Int. 80. At that meeting did the board pass a resolution to reduce the number of trustees or directors?

A. I believe they did; or it may have been that that was a notice to make such reduction at the next meeting.

X Int. 81. When was the annual meeting held for the election of trustees?

A. I think it was about the 8th of August; can't be positive, as I have no documents to refer to in the matter.

X Int. 82. At the last meeting of the directors at which you were present, as you have stated, what was said to lead you to believe that your absence there was preferred to your presence?

A. I don't remember exactly now what was said, but I remember that my impression at the time was that I was to be thrown out or left out, so I took time by the forelock and stayed away.

X Int. 83. At the next election of directors, as I understand you, you were left out?

425 A. That is what I believe, as I never received any notice of my election or re-election, nor of any subsequent meetings that may have been held by the company.

X Int. 84. And never again attended any meeting of the directors, as I understand you, as director?

A. No, sir.

X Int. 85. How many shares of stock did you originally own in the Interchangeable Tool Co.?

A. I think three hundred (300).

X Int. 86. What was the par value of the shares?

A. ($50) Fifty dollars each.

X Int. 87. Of whom did you get that stock?

A. Thomas G. Hall.

X Int. 88. For what consideration?

A. In consideration of valuable services performed for him in the organization or formation of a company to manufacture and sell a certain cutting nipper which he then had.

X Int. 89. What was the name of that company?

A. The Interchangeable Tool Co. of New York.

X Int. 90. What services did you render to Mr. Hall in the organization of that company?

A. The first service that I rendered was borrowing the money on my watch to pay the office fee of Munn & Co. for applying for a patent for his nipper. The other services were trifling; I don't remember what they were now.

X Int. 91. What had the application of the patent to do with the organization of the company?

A. It was necessary to tell parties whose capital we might endeavor to enlist in the enterprise that the article in question was either patented or the patent applied —.

X Int. 92. What did you do with your stock that you had in the company—I mean the 300 shares?

A. I gave to Mr. J. F. Oliver 80 shares as a consideration that he should place $20,000 worth of the stock or 400 shares at 25 per cent. of its par value; twenty shares to William Q. Judge, for which I don't remember the consideration now; I think I afterwards presented William Q. Judge with 10 shares. I sold Charles H. Tyson 20 shares for a sum of $800, which money I loaned the company to meet a note due the Colt's Fire-Arms Company; 10 shares
426 I sold to H. S. Vroom, for which I received about $400; 2 shares I presented to H. C. Smith in consideration of a loan which he made to the company for something less than a month, and for which the company also paid him $75 in cash in interest; 10 shares to J. W. Fowle for a diamond pin, which I afterwards pawned to pay the company's help with. Fifty shares, I think, went to George W. Mansfield, which he obtained from me by fraud; and I would here explain that the majority of this stock, although it belonged to me, stood nearly, if not all, on the books of the company in my brother Leon's name. I am almost positive that I started out with the correct number of shares; it may possibly have been more.

X Int. 93. You accounted for the sale or disposal of 202 shares; what did you do with the remaining 98 shares?

A. I now think of 50 shares I hypothecated to H. C. Smith for the sum of $1,000, $500 of which I used to repay moneys borrowed by the company from a friend of mine in my name and without my knowledge or consent; the balance of the money went to pay the last instalment of a speculation which has proved, I am sorry to say, disastrous; as to the remaining 48 shares I have no recollection just now as to what disposal was made of them.

X Int. 94. The $800 which you say you loaned to the company, did the company repay you?

A. I don't think they did.

X Int. 95. And do they still owe you the $800?

A. Some time last spring I made up a statement of what I con-

sidered the company owed me, as nearly as I could get at it, stating that if they would audit the account and show me how it stood according to their figures we could come to some settlement which would be to the company's advantage. I was promised a statement of the account by their side as soon as I had surrendered certain notes, signed in blank by Mr. Hall, amounting in number to, I think, 100. Those notes were returned to the company. I have never heard anything further about my account.

X Int. 96. What was the amount of your claim against the company as stated in your account?

A. I don't remember the exact amount, but think it was something over $2,000.

X Int. 97. Did the company repay you the money you paid for them and which you say they borrowed from a friend of yours
427 without your knowledge or consent, or was that $500 included in your account?

A. The company did not repay me, but the amount remained credited to my friend on the company's books and was afterwards included in their compromise settlement with him as one of their creditors, he agreeing to repay me the amount he received on the company's notes when they were paid.

X Int. 98. In answer to question 3 you say you were "attorney;" do you mean by that that you were attorney-in-fact, duly appointed by power of attorney made by the company for some especial purpose?

A. The power of attorney given me by the company, as near as I can recollect, gave me full powers to make such compromises with their creditors and act for them in all their business affairs as if they themselves were personally present. There was also a power, or rather a copy of the minutes made embodying such power of attorney, which I believe was placed on the minutes of the company and a copy of which, signed by the company's president and secretary and sealed with the company's seal, was delivered to me, and which powers are now in the hands of my attorneys, in New Haven, Conn.

X Int. 99. When was that power of attorney given to you?

A. I think about the latter part of November, about the 20th, I think; perhaps a day or two sooner or later.

X Int. 100. You say that power of attorney was given to you to authorize you to settle with the creditors of the company; did you make any settlement with the company's creditors?

A. No; I did not.

X Int. 101. Can and will you produce the power of attorney to which you refer in answer to X Int. 98?

A. I think I can and will, providing I have reasonable time to go and get it.

(Counsel for Johnson agrees to produce the original or a certified copy of this power of attorney and put it in evidence.)

X Int. 102. Who were the creditors of the company that you were authorized to settle with, and how were you authorized to settle with them?

A. As near as I can recollect, not having the papers here,
428 the wording was "the creditors of the company in such manner as he may deem best for the company's best interest." My understanding was that it was all the creditors of the company, the trustee who had charge of the company's property by appointment of the probate court of Milford being understood more particularly than the rest. Said trustee would be willing to testify as to how nearly I had brought a settlement with him to a close by which the company would have regained possession of their chattels and property. I borrowed money from friends in Hartford, Conn., with which I paid the rent of the factory in Milford just in time to save the lease and other privileges connected with it to the company.

X Int. 103. You say in the previous answer that you were in possession of certainly 100 promissory notes signed by the company in blank. Were those notes given to you to use in the settlement with the company's creditors to which you have referred?

A. They were.

X Int. 104. Did you use any of those notes?

A. I did not.

X Int. 105. Didn't sell any of them?

A. No; I did not.

X Int. 106. What did you do with them?

A. I gave them to my lawyer, who surrendered them to the attorney of the tool company.

X Int. 107. Didn't you use any of those notes for your own benefit, and didn't Mr. Hall threaten to have you arrested if you didn't return those notes?

A. Mr. Hall swore out an affidavit before a grand jury of the State of Connecticut, I think, upon which a warrant was issued for my arrest. I was not arrested. Some days after the issue of this warrant, by the advice of my counsel, who said that, as the notes were probably worthless, I might as well surrender them and save any proceedings in the matter, —. The affidavit which Mr. Hall made was to the effect that I had disposed of two of the company's notes, of the amount of about $600 each, and appropriated the proceeds to my own personal use and benefit. I did not use any of those notes for my own benefit or anybody else's.

X Int. 108. Did you not fill out two of those notes payable to your own order and obtain money upon them?

A. I did not.

429 X Int. 109. Did you fill out one or more of them made payable to your order and obtain money upon them?

A. I filled out one note one night while I was at Mr. Mansfield's house at his instigation and by his advice, his idea being that, as I was a creditor of the company, it would be a good idea to have two or three of these notes filled out and placed in a third party's hands. After filling out the first note I began to see that it was rather a foolish piece of business and stopped. I replaced the notes in my wallet, and did not know until some time afterward that the note which I had filled out had been retained by Mansfield. When I discovered that my notes were one short and went to Mansfield for

it he refused to surrender the note, except upon my transferring to him of certain stocks which I had loaned him to use as collateral for his own benefit. I was very much excited at the time, in fact very sick, as I can prove by two respectable physicians, and signed a paper which, as he read it to me, was an agreement that certain stocks which he held should be transferred to him. He then delivered to me the note, which completed my quota of 100 and which I immediately thereafter, through my attorney, delivered to the company, never having received any consideration whatever for anything in the transaction.

X Int. 110. What was the amount of the note Mr. Mansfield retained, as you say?

A. As near as I can recollect, between 700 and 800 dollars.

X Int. 111. Do you swear that Mr. Mansfield did not give you the money for that note?

A. I do.

X Int. 112. Didn't he give you any money on the note?

A. No money whatever; not a cent; neither goods nor merchandise nor anything else.

X Int. 113. No consideration whatever?

A. No consideration whatever.

X Int. 114. Did you give him the note, or how did he get possession of it?

A. He gathered up the notes that were on the table with other things—writing material, and so forth—and handed me a bundle of notes, which I placed in my wallet. How he got possession of the written note I have no knowledge.

X Int. 115. Was it to obtain possession of that note that you transferred or caused to be transferred to Mr. Mansfield the fifty shares of stock that you say he defrauded you out of?

430 A. It was not. I could have obtained possession of that note had I had the time and means by a process of law, but it is in consideration of his not interfering with other negotiations which I then had pending and with the understanding that the tool Co.'s stock was to be returned to me.

X Int. 116. What was Mr. Mansfield's name?

A. I think it was George Washington Mansfield.

X Int. 117. Was not that 50 shares of stock transferred to Mrs. Mansfield, the wife of the said Geo. W. Mansfield?

A. I have no knowledge whatever of what became of any of the stock after it passed into Mansfield's hands from mine.

X Int. 118. You gave Mr. Mansfield the stock yourself, then, as I understand you?

A. I believe I did.

X Int. 119. Fifty shares?

A. I think so.

X Int. 120. At the time he returned you the note?

A. No, sir; it was some time before that; I don't remember when; some time when I was at his home. He was in great financial distress, and I did what I could to help him.

X Int. 121. Did he get the stock before he got the note?

A. I don't remember whether he got it before or at the same time that he took the note.

X Int. 122. Didn't you give him the stock as collateral security to secure the payment of the note?

A. I am positive that I did not.

X Int. 123. This 50 shares of stock to which you have been referring is the same 50 shares that you say Mr. Mansfield defrauded you out of, as I understand you?

A. I have no recollection of having given him more than 50 shares of stock.

X Int. 124. Well, this is all the stock of the Interchangeable Tool Co. that you gave to Mr. Mansfield or that he got from you, either by force, fraud, or purchase or gift?

A. That is the only 50 shares that I have any remembrance of his having received from me, and my recollection in the matter is that he was to use it as collateral, if necessary, in settling some of his liabilities in Hackensack on a note of $300—a personal note of mine, on demand, given to him in settlement of a commis-
431 sion to be paid to him by me for services rendered in the matter of starting the Hartford Duplicate Machine and Tool Company, and on account of which note I afterwards paid him in money about from $50 to $75.

X Int. 125. Who is Mr. Geo. W. Mansfield, where does he live, what is his business?

A. What he is doing now or where he lives I cannot state definitely, but heard several months ago that he had used the various stocks which he had received from me to settle his affairs in Hackensack, so that his wife might be able to remove the furniture and chattels, and that he had gone to Chicago. When I first became acquainted with Mr. Mansfield, and the last time I saw him, he was employed by an insurance agency in Pine St., New York, in the office of the Northern and Imperial Insurance agency.

X Int. 126. Referring again to these notes that were given to you in blank by the Interchangeable Tool Co., were they given to you by the company for you to use in settlement with its creditors and to obtain possession for it of its assets?

A. The way I came to have these notes was that I met Mr. Hall on the morning previous to my departure for Washington, and, being informed by him that he would probably not be able to see me for several days after my return, I suggested that he had better sign a book of notes in blank as president of the company, and then should it be necessary for me to use any of these notes I could sign as treasurer and use them for any purpose in the company's business that might arise. I bought the book of blank notes, and he signed them.

X Int. 127. I asked you whether the notes were given to you to be used for the purpose of obtaining possession of the company's assets. Please answer.

A. Well, that was the principal object that I had in view when I asked for the notes.

X Int. 128. Was it not all prearranged by the directors of the

company that you were to have a power of attorney to settle with its creditors and obtain possession of its assets, and that the notes were to be given to you for that purpose, and did not the board of directors pass a resolution directing the power of attorney to be made and the notes to be made and given to you?

A. There was nothing said about notes in the matter whatever. I was to act as I saw fit for the company's best interests, and
432 when I asked Mr. Hall to sign those notes in blank I was merely taking a precaution to save time and avoid delays in any settlement favorable to the company that might be made with the trustee or any of its other creditors.

X Int. 129. Who had possession of the company's assets?

A. Henry S. Rogers, of Milford, Conn. There were also attachments on the property placed there by his brother, Isaac T. Rogers; also, I think, an attachment on behalf of Henry G. Thompson.

X Int. 130. Did the company make an assignment of its assets for the benefit of its creditors to Henry S. Rogers?

A. No to my knowledge. They did, however, make an assignment to Wm. A. Healey, of Hartford, Conn., which, in some way that I don't understand, was thrown aside, and Henry S. Rogers appointed trustee by the probate judge of the town of Milford.

X Int. 131. So that Henry S. Rogers was by some proper legal authority in possession of the company's assets for the benefit of its creditors, as I understand you?

A. He was; but I raised questions as to the legality of his appointment and, by continually harassing the old gentleman, kept him from gobbling up everything that the company had; all of which is well known to Mr. Rogers himself, the probate judge who appointed him trustee, and what respectable business men there are in Milford.

X Int. 132. Then all the settlement that you could make with the company's creditors had to be made and negotiated through Mr. Rogers, as I understand it. Is that correct?

A. Well, in this way: Mr. Rogers agreed that if I should bring him a compromise signed by all the creditors and a certain amount of money or its equivalent to satisfy his own claim (this compromise that I speak of being also a release to him as trustee on their behalf) he would then turn over what property of the company might remain in his possession, at the same time urging me to give such creditors notes or anything else that they might be satisfied with in settlement of their respective claims and taking their receipt therefor.

X Int. 133. What terms did you propose to the creditors of the company by way of settlement, if any?

A. Six, nine, and twelve months unendorsed paper of the company for all claims exceeding $100; the lesser claims to be settled for in cash if necessary, but as far as possible by short notes.

433 X Int. 134. Did you propose to give the creditors of the company its notes payable in six, nine, and twelve months for the full amount of their claims?

A. I had forgotten to mention in my answer to the previous

question that the notes were to be for the amount of 50 per cent. of their claims, and it was understood between the majority of the directors that in some few instances some of our creditors were to be told that as fast as possible they would be made whole on the other 50 cents.

X Int. 135. And did the creditors decline the terms you proposed to them as you have stated?

A. With, I think, one or two exceptions, all of the creditors that I called on personally agreed to the proposition, always understanding that the property was to be taken out of the trustee's hands and again come into the possession of the company.

X Int. 136. In making your negotiations with the company's creditors for the purpose of settlement did you explain to them or in any way intimate to them that Mr. Moses C. Johnson claimed to be the inventor of the nipper which is the subject-matter of this interference.

A. I have no recollection of having done so in any one instance, but in several cases I was asked by creditors of the company, What's the use of you folks trying to settle this thing, anyhow? You will only get out of the frying pan into the fire. Johnson owns that patent, and as soon as you have everything clear he and Henry G. Thompson will be down on you. That is the substance and pretty nearly the words that was said to me by several.

X Int. 137. What answer did you make to that argument on behalf of the creditors?

A. Well, sometimes one thing and sometimes another; but my main point was that Mr. Thompson had all he could attend to without bothering about our patents, and we could probably arrange things very easily with him; all of which I didn't hardly believe myself, but, not being under oath, didn't feel compelled to stick to the straight line of truth.

X Int. 138. Did you honestly believe then, as you say you honestly believe now, that Mr. Johnson was the inventor of the nippper in question?

A. I did to this extent, that he was the man who had made
434 the changes on the old nipper which had made it a perfect working tool, and as far as the combination of his improvement with Mr. Hall's patented combination I did then and before then and do now believe it to be Mr. Johnson's invention and still give Mr. Hall credit for having shown great ingenuity and patience and ability in making the combination which he did. I had on several occasions suggested the propriety, I think, both to Mr. Hall and Mr. Adams, of the company's securing acknowledgement by the Patent Office, through assignment or caveat, of such improvements as might have been made since the former patent.

X Int. 139. But in your effort to settle with the creditors of the company you did not tell them that you honestly believed Mr. Johnson to be the inventor of the nipper or any part of it, did you?

A. I honestly believe I did not, but have shown some of the company's creditors with considerable pride some of the fine tools that

we had in the shop, and when asked who made this and who made that would say, "That little skinny fellow over there, Johnson."

X Int. 140. Well, did you finally succeed in obtaining a settlement with the company's creditors and in obtaining possession of its assets for the company?

A. I did not.

X Int. 141. Did you make a report to the company of what you had done and of your failure to make the settlement?

A. I made what report it was possible for me to make, but did not consider it a failure until some of the officers of the company suggested to me that it was and made it a failure for me.

X Int. 142. Which of the officers of the company suggested to you that it was a failure and made it a failure?

A. My best recollection is that it was Messrs. Hall, Leopold, and Mr. Fowle (although I do not know that the latter was an officer at the time). They had been negotiating without my knowledge with the trustee, and afterwards came to me and said that there was no use of my trying to do anything any longer; that I might as well give it up; that they proposed to sift the whole matter to see what could be done with Messrs. Rogers, Thompson, and the other creditors and what arrangement could be made about the patents, and if then the business showed that there was any chance of their saving themselves there was one or two in the company who were ready to come forward and close the thing up as well as possible.

435 X Int. 143. Did not the trustee, Mr. Henry S. Rogers, tell you that he wouldn't have anything more to do with you, and did not Mr. Rogers so report to the directors of the company, and did not the company thereupon revoke your power of attorney and undertake the settlement of its own affairs?

A. He did not. I have no knowledge of anything that Mr. Rogers reported to the company except through the company's report to me. I think the company did undertake the settlement of its own affairs, and may have revoked my power of attorney.

X Int. 144. Don't you know whether the company revoked your power of attorney or not?

A. Well, I suppose the fact of my having ceased to act under such power is an acknowledgement that it was revoked. I admit that it was revoked.

X Int. 145. After you had given up your negotiations with the creditors of the company and made your report to it did you admit or tell Mr. Oliver, one of the directors of the company, and Mr. Hall, its president, that you had raised upwards of $1,200 on the notes the company had given you to use in the settlement with the creditors, and that you had appropriated the money for your own use?

A. I believe I told Mr. Oliver something to that effect, but I haven't done so, for all that. I did it to scare him, and he scared very badly. As for Mr. Hall, president of the company, I never said a word to him about it, the only conversation that I had with Mr. Hall being on the piazza of the hotel at Milford, where he came to me and requested the surrender of those notes he had signed, nothing

being said about amounts or anything else or about what had been done with any of it.

X Int. 146. Did not you in presenting your claim against the company for settlement include in the account of your claim the amount of money you had raised on two of those notes and give the company credit for the amount as an offset against your alleged claim?

A. I remember having made a memorandum of the word "credit," and in one part of the space underneath it writing the words "by two notes," putting no amount, and when handing the claim to Mr. Oliver told him to tell the company that when they showed me a statement of my account as they had it I should hand them all the notes given to me signed by Mr. Hall in blank.

436 X Int. 147. And did the company thereupon give you a statement of your account as they had it?

A. They did not, nor have they ever done so.

X Int. 148. Did Mr. Hall, the president of the company, thereupon demand of you the return of those notes and give you two weeks to return them in, and, failing to do so, threaten to have you arrested?

A. I remember his demanding the notes; don't remember anything about the two weeks, although he may possibly have said so. I wasn't listening very hard at the time.

X Int. 149. Did Mr. Hall sue out a warrant against you and place it in the hands of the sheriff for your arrest for failure to return those notes?

A. He did.

X Int. 150. Did the sheriff call upon you?

A. He did.

X Int. 151. Did he arrest you?

A. No, sir; he didn't. I never saw the writ until some time after the notes had been returned to the company.

X Int. 152. How did you avoid arrest?

A. Well, I presume the sheriff — attending to his business in a different direction from what — was attending to mine.

X Int. 153. Did the sheriff call at your house for you?

A. He did not call for me. He called to see me, as had been his habit of doing several months previous.

X Int. 154. Did he arrest you?

A. No, sir.

X Int. 155. Why didn't he arrest you?

A. As I learned afterwards, he didn't arrest me, as I was very ill at the time.

X Int. 156. How often did he call upon you?

A. I saw him only once in the house on that memorable occasion. He probably called several times when I had gone down to the seaside to get well.

X Int. 157. Did you see him the first time he called?

A. I think it was on his first call that I saw him.

X Int. 158. When did he next call—the next day?

A. I think it was.

X Int. 159. Did you see him the next day?

437 A. No, sir.

X Int. 160. Had you then departed to the seashore for the benefit of your health?

A. I don't think I had; but I was really so sick at that time that I shouldn't consider my account of the matter as being positive.

X Int. 161. Were you at the house at the time the sheriff called at the house the second time?

A. My belief is I was.

X Int. 162. Did you promise the sheriff to report yourself at his house the next day *morning* after you first saw him if you were well enough to go out?

A. If the sheriff should tell me I had done so I should admit it, but I haven't the faintest recollection of having done so.

X Int. 163. How long after the sheriff's first visit there was it that you afterwards left Milford?

A. I think it was the following afternoon.

X Int. 164. Now, did you not leave Milford for the purpose of avoiding arrest by the sheriff upon that warrant?

A. When I left Milford my only idea, as I can remember, was to get where I could get sea air and whiskey. I got both, especially the latter.

X Int. 165. Where did you go when you left Milford?

A. I was told afterwards, and I believe it, that I went to the Washington Bridge Hotel, where I presume I got whiskey enough.

X Int. 166. Where is the Washington Bridge Hotel?

A. In the town of Milford, near the mouth of the Housatonic river. I think I was also at George Smith's, Milford Point House, where I was told I had clams, but have no recollection of any of it.

X Int. 167. How long did you stay at the Washington Bridge Hotel?

A. I can't recollect that at all; have tried hard before to do so.

X Int. 168. Do you recollect the amount of your bill for whisky and other refreshments at the said Washington Bridge Hotel?

A. I have never seen a bill of it, but was told it was about $60.

X Int. 169. And the next place you went to was the Milford Point House, where you don't recollect whether you had clams or not, as I understand you?

A. No; I think the Milford Point House must have been the first place I went to.

438 X Int. 170. At any rate you got clear of the sheriff?

A. Well, I should say I did.

X Int. 171. How long after that was it before you surrendered the notes to the Interchangeable Tool Company?

A. I think it was one week.

X Int. 172. Can you give the date of their surrender?

A. I cannot.

X Int. 173. Who authorized you to write to Mr. Matthew O. Diamond, of Hartford, Conn., requesting him to recommend to you a good mechanic to take charge of mechanical department of the Interchangeable Tool Co.?

A. I don't know of any particular authority beyond that conferred

on me by my position in the company, and it was undoubtedly done with the concurrence of Mr. Hall, whose opinion I always sought in these matters.

X Int. 174. Was it done with the knowledge and consent of Mr. Hall?

A. I can't say positively; it may or it may not have been.

X Int. 175. Did Mr. Johnson bring a letter to you from Mr. Diamond?

A. I rather think he did; I think he brought the letter that I had written to Mr. Diamond.

X Int. 176. Have you got that letter?

A. No, sir.

X Int. 177. Do you know where it is?

A. I do not; I don't even remember whether Johnson took it away with him or not.

X Int. 178. Was the office of the Interchangeable Tool Co. at 71 Broadway at the time Mr. Johnson first called on you, or was that the office of William Q. Judge?

A. It was the office of Mr. Wm. Q. Judge, who, through courtesy to me, allowed the tool Co. to use part of it as their temporary office.

X Int. 179. Was Mr. Judge present at the time Mr. Johnson first called on you at your interview with him?

A. No, sir.

X Int. 180. Who was in the office?

A. No one but Johnson and myself.

X Int. 181. What time of the day was it?

439 A. I think it was in the afternoon.

X Int. 182. Referring now to the model you say that Messrs. Jenks & Co. made, state, if you know, where that model is.

A. I don't know; haven't the faintest idea; don't believe it's in existence.

X Int. 183. Where did you last see it?

A. In the shop of the Interchangeable Tool Co., at Hudson St.

X Int. 184. When?

A. I think in April of 1879.

X Int. 185. In whose possession was it?

A. In the possession of the Interchangeable Tool Co. It was taken apart for tool-maker's use, and, I believe, some of the parts were changed. For some time the model-work and tool-work used to lay on the benches. After we got a safe boxes containing these different articles used to be locked up nightly, Mr. Adams or Mr. Johnson bringing them into the office there and placing them into their proper receptacles.

X Int. 186. What changes were made in some of its parts?

A. I don't remember what they were.

X Int. 187. Who made such changes?

A. I think Mr. Johnson made most of them.

X Int. 188. How did that model differ when it left the hands of Messrs. Jencks & Co. from the model made by Mr. Crane?

A. I think the top of the outside of the jaws were flatter and the

top of the side plates were cut on a sweep or a circle. Instead of screws being used I think there were smooth pins, and the handles at the place nearest their fulcrum points were each finished in a different way, the outside of one being left rather flat and the other one rounding in, as in the Crane model.

X Int. 189. Was the model made by Jencks & Co. a better nipper than that made by Crane?

A. The parts were more accurately fitted and were pronounced mathematically correct in measurement by Mr. Hall, but, as the nipper was never hardened, there was no means that I know of testing its working qualities against those of the Crane model.

X Int. 190. Then, as I understand you, the Jencks model was superior to the Crane model in that it was of more perfect workmanship, in your judgment?

A. That's it exactly.

440 X Int. 191. What size of nipper was it—was it the same size as the Crane model?

A. I think there was a variation of, it might have been, $\frac{1}{16}$ or $\frac{1}{8}$ of an inch between the two in length. I can't say which way the difference went, but that's my impression. I mean in the length of the nipper as a whole.

X Int. 192. Was the long end of the jaw lever in the Jenks model longer than it was in the Crane model?

A. My impression is that it was very slightly longer.

X Int. 193. Was the Crane model made of the drop forgings furnished by the Colt's Patent Fire-Arms M'f'g Company?

A. No; they were not. It was made from forgings made in a blacksmith's shop in Raymond St., Brooklyn, opposite the hospital. That is what Mr. Crane told me at the time.

X Int. 194. Then, as I understand you, the several parts of the Crane nipper were forged by hand and were fitted together by hand?

A. Yes; with the assistance with what drilling and planing might be made in any shop.

X Int. 195. As to the Jenks model, was that made of drop forgings furnished by the Colt's Patent Fire-Arm Manufacturing Co. and made into the dies of the Interchangeable Tool Co.?

A. I have always understood that such forgings were used in its construction, but that there had been some alterations made in the forgings.

X Int. 196. What alteration was made in the forgings?

A. I think that the shank part of the jaw pieces were cut and pieces dovetailed in, in order to give either additional length to the shank or to allow sufficient stock there to accommodate it to the motion of the handle, according to Mr. Hall's idea.

X Int. 197. Do you know of your own knowledge that such alteration was made in the tail end of the jaw pieces?

A. I do; because I saw where the piece was dovetailed in.

X Int. 198. You say this model made by Jencks & Co. was held together by pins instead of screws; state whether the pins were of the same size as the screws were in the other model.

A. When I think the matter over, it's possible that I may have got my impressian of pins in the model from the model No. 1, small nipper, which Johnson made in Milford.

441 *X Int. 199.* Cross-examination adjourned until Thursday, December 8, 1881, at 10 o'clock a. m.

THURSDAY, *December 8th*, 1881—10 o'clock a. m.

Parties meet pursuant to adjournment.

Present: Same parties as before.

Cross-examination of Mr. GUSTAM continued by Mr. BROADNAX:

X Int. 200. You say in a previous answer that you told Messrs. Jenks & Co., when you gave them directions to make the nipper, that you would pay them out of your own pocket. Did you pay them out of your own pocket?

A. At the time that I paid for that nipper I had to borrow the money from J. W. Fowle and hypothecate stock for it, but the money was afterwards, I believe, repaid to me by the company some way. I don't remember just how.

X Int. 201. Did you pay for the nipper with your own check or was it paid for with the company's check?

A. It wasn't paid for by a check at all; it was paid for in bank bills.

X Int. 202. Did you pay for it yourself?

A. Yes, sir.

X Int. 203. What was the amount that you paid for the nipper?

A. Something over one hundred ($100) dollars; I don't remember just what.

X Int. 204. Did Mr. Hall furnish the drop forgings to Jenks & Co. to make that nipper of?

A. Yes; I think he did.

X Int. 205. Were the holes for the fulcra of the jaws drilled in the forgings at the time Mr. Hall furnished them?

A. I have every reason to believe that they were, from the fact that some one from Jenks & Co. informed us that the holes had not been correctly drilled; that would necessitate some alterations in the jaw or making new forgings.

X Int. 206. Do you know whether Jenks & Co. drilled the
442 holes or whether the holes were drilled at the Interchangeable Tool Company's shop?

A. My impression is we had no parts of jaws at that time that were not drilled, as I remember fault being found with the driller or drillers for not leaving a few pieces always as they came from the forging shop, instead of cleaning up all the work that there was on the floor.

X Int. 207. Who was it that found fault with the workmen for drilling all the pieces up?

A. Well, I shouldn't wonder but that it was Mr. Hall himself; perhaps me.

X Int. 208. Then your conviction that the jaw pieces furnished to Jenks & Co. were drilled is based upon the fact that the company did not have jaw pieces that were not drilled?

A. On that fact and also on my remembrance of Mr. Johnson having spoken to me of the fact within two or three weeks after he entered our employ, in answer or in explanation to my inquiries of him as to how it was possible that so much time should be spent on making that model when Crane had made his in less than six days.

X Int. 209. Now, are you sure that the company received the model from Jenks & Co. as early as January, 1879?

A. No, sir; I am not. I couldn't say within six weeks when it was received. I could easily find out.

X Int. 210. After the company moved its shop to Milford how much of the time did you spend at the works?

A. Well, for the first few weeks I was there a good deal.

X Int. 211. How many weeks do you include in a "few weeks?"

A. Well, I should say 3 or 4 weeks; perhaps as many as 6; not over that, though.

X Int. 212. Do you mean that you were there at the works every day for the first few weeks?

A. No; I mean that I was there 2 or 3 or 4 or 5 days of the week—when I wasn't running round making purchases or supplies for the company.

X Int. 213. Was Mr. Moses C. Johnson in the employ of the company then?

A. He was.

X Int. 214. What was the first job that Mr. Johnson worked upon after you moved to Milford?

443 A. Getting the machines set up properly and getting them in line—getting them in trim for work.

X Int. 215. How long did it take him to do that?

A. I should say several days; not over a week.

X Int. 216. What was the next job that Mr. Johnson was employed upon?

A. That I don't remember.

X Int. 217. Do you recollect Mr. Johnson making a drawing, while he was in the employ of the Interchangeable Tool Co. at Milford, of Mr. Hall's self-adjusting vise?

A. I can't say that I do, and yet I have a faint recollection that he did something of that kind. My idea was that he had made such a drawing in New York.

X Int. 218. Do you recollect of Mr. Johnson making a model of Mr. Hall's self-adjusting vise while he was in the employ of the Interchangeable Tool Co. at Milford?

A. All my recollections about that vise—that is, Mr. Johnson's work on it—is that it was done in New York. I may, however, be mistaken, and would not and could not make a positive statement in regard to the matter.

X Int. 219. Is it your recollection that the drawing for the vise made by Mr. Johnson was made at the shop of the Interchangeable Tool Co. in New York?

A. I have no distinct remembrance of Mr. Johnson's having made any drawing, but I know that Mr. Wm. Q. Judge made drawings of the vise.

X Int. 220. Don't you recollect that there was a sample vise made in the company's shop in New York, and that a model of the vise was made at the shop in Milford by Mr. Johnson?

A. I recollect the New York part of it, but I don't recollect the Milford part of it. He may have made a vise in Milford or a drawing of a vise in Milford while I was away from the shop there.

X Int. 221. Are you sure that Mr. Johnson made the model of the nipper No. 1 in the company's shop at Milford?

A. Positive; because I saw him working on it there myself.

X Int. 222. How long did it take him to make it?

A. That I couldn't state. I haven't the faintest idea.

X Int. 223. You are sure that Johnson made the model at Milford himself, as — understand you?

444 A. He may have had assistance there, but all the work that I saw done on the No. 1 model nipper at Milford was being done by Mr. Johnson.

X Int. 224. How many men were employed in the shop at Milford about the time that this nipper was made?

A. I should say about 15 would hit the mark very close.

X Int. 225. Who was foreman of the shop?

A. I don't remember whether Mr. Thomas Thompson had come there at that time or not; if not, then Mr. Johnson was foreman.

X Int. 226. Was Mr. Johnson foreman when you moved to Milford?

A. My idea is that his foremanship was to begin upon our arrival at Milford.

X Int. 227. Did his foremanship begin then?

A. It did.

X Int. 228. Now, who succeeded him as foreman?

A. Thomas Thompson.

X — 229. Now, was the model nipper No. 1 made after Mr. Thomas Thompson became foreman or before?

A. That's something that I am in doubt about.

X Int. 230. Did Mr. Johnson continue in the employ of the company after Mr. Thomas Thompson became foreman?

A. He did.

X Int. 231. How long?

A. That I don't know.

X Int. 232. State as near as you can recollect.

A. Probably two months; not over that, I think.

X Int. 233. Did he work as a workman at the vise at all during the time he was foreman?

A. I have seen him standing at a vise doing something; I don't know what. I don't think he spent much time at the vise. By this I do not mean the model vise spoken of as Mr. Hall's.

X Int. 234. About how long had you been *had* (at) Milford before Mr. Thomas Thompson became foreman?

A. Probably six or eight weeks.

X Int. 235. When Mr. Johnson worked at the vise as a workman whereabouts in the shop was the vise located that Mr. Johnson worked at?

A. My impression is that it was at one of the vises used by the regular gang of tool-makers.

445 X Int. 236. Whereabouts in the shop was it located?

A. I think on the side facing the railroad, and at other times when I saw him working on the No. 1 model it was mostly on the other side of the shop, about one-half way between the tempering-room and the engine-room.

X Int. 237. During the time that Mr. Johnson was foreman didn't it take about all his time to look after the other men and adjust the machinery and tools of the shop?

A. I don't think Mr. Johnson adjusted the machinery while he was foreman, but simply saw that it was properly done.

X Int. 238. What were his duties as foreman?

A. To see that all the journeymen were properly placed, each one on the work that he was best adapted to, and that his work was performed faithfully and according to standard or gauge.

X Int. 239. Did not Mr. Johnson's duties as foreman occupy about all his time?

A. They did; but when Mr. Johnson went to work he could cover more ground in three days than Mr. Thompson could in a week, from the fact that he was a younger man and had quicker mechanical ideas.

X Int. 240. Then if Mr. Johnson made the model nipper No. 1 at the company's shop, at Milford, it must have been after Mr. Thompson became foreman?

A. I don't see why it must have been; it may have been. I have no distinct idea when he began or finished it.

X Int. 241. If Mr. Johnson's time was fully occupied in the discharge of his duties as foreman he could have had no time to make the nipper, could he?

A. Well, Mr. Hall was there nearly all the time taking general charge over the inferior workmen—those that really required the most looking after—and that would relieve any foreman wonderfully.

X Int. 242. How long would it take Mr. Johnson, steady working, to make the model nipper No. 1 with all the special tools necessary to make it, supposing him to work during the ordinary working hours of each day?

A. I should say he could make it in about five days, not being interrupted at all.

X Int. 243. Who had general charge of the mechanical department and workmen of the Interchangeable Tool Company

446 during the time Mr. Johnson was foreman and Mr. Thomas Thompson was foreman?

A. Mr. Hall (Thomas G.).

X Int. 244. When Mr. Johnson was in the employ of the company as foreman was he dismissed by Mr. Hall?

A. He was.

X Int. 245. What for?

A. There have been so many stories about what for that it's hard for any one to state positively; it was not for any dishonorable act, however. Mr. Hall informed me that he had gone on a spree. Mr. Johnson informed me that he had been ill; and according to my opinion and experience a slight illness will often lead people to presume that a big spree is going on. Mr. Johnson was reinstated in his position.

X Int. 246. At whose solicitation was Mr. Johnson reinstated?

A. Upon my representing to Messrs. Hall, Oliver, and Rogers, respectively, the president, secretary, and treasurer of the company, that Johnson was too valuable a man to lose at that stage of our career, he was, as I have before said, reinstated.

X Int. 247. Don't you know of your own knowledge that Mr. Johnson was discharged by Mr. Hall because he was drunk and was in the habit of getting drunk and embarrassing the business of the company, and did you not take Johnson to Hall's room and urge him to take him back and promise him that he wouldn't get drunk any more?

A. Yes; I think I do remember that, and also that after we had got Johnson out of the room Mr. Hall and I sat down and celebrated the event by getting very comfortably mellow ourselves.

X Int. 248. Is Mr. Hall in the habit of getting drunk?

A. No, sir; Mr. Hall is a very temperate man, as far as liquor is concerned; doesn't use tobacco in any form; is always clear-headed and cool.

X Int. 249. Please to give the names of the workmen that were employed under Mr. Johnson's supervision and while he was employed in the company's shop at Milford.

A. Louis Smith, Sylvia, James Courtney, Dan. Johnson, Gundaker, Pope, Leon Gustam, Charles Ashley, Fred. Hills, Fred. Hills' son, Saul Birmingham, Westbrook, Tom Conners, Frank Manville, Dan. Murray, Frank Underhill, John Low, and 3 or 4 natives of Milford whose names I don't remember.

447 X Int. 250. Was there a man there by the name of King, another of the name of Gilman, and a boy of the name of McMahan?

A. Yes; I recollect all three of them.

X Int. 251. Do you recollect whether or not the man of the name of King continued the work on the Hall adjustable vise after Mr. Johnson left it?

A. I do not.

X Int. 252. Don't you recollect having a conversation with Mr. King with reference to the merits of this self-adjusting vise and repeating that conversation to Mr. Hall?

A. I do not.

X Int. 253. Do you know of a company known as the Self-Adjusting Vise Co.?

A. I do, and am a stockholder therein.

X Int. 254. In answer to question 13 of your examination-in-chief you say that the brass block that holds the spring in Hall's Exhibit

No. 8 was omitted from the model made by Jencks & Co. Please to state how the spring was held in that model if not by the brass block.

A. The brass block wouldn't hold the spring any way as it was made, according to my idea. In giving my description of what has been called the Jencks model my ideas were mixed between the Jencks model and the large No. 4 nipper model. I would now say that, to the best of my belief, the plates were fastened by screws. The top of the plates were beveled and the spring held in place by the pin running across the throat of the jaws through both plates. The spring had evidently been tapered and may possibly have rested at its ends in a slight indentation of the jaw. This is as near as I can recollect after thinking the matter over hard.

X Int. 255. In answer to question 15 you say that several caucuses were held by the different members of the company. What do you mean by the expression "caucuses," and by what members of the company were they held?

A. By the expression "caucus" I mean meetings of two or more of the persons in question to discuss the situation of affairs. It may be the wrong word to use, but that is what I meant; and the persons were Messrs. Hall, Oliver, Harris, Judge, and myself. I cannot remember now which of us met together at those different meetings. Sometimes one pair or trio, sometimes another, but
448 always some of the parties named, and I know that I cannot give any fuller or better answer than I have already given. It was something that future circumstances made of no moment. I think we all dropped the matter or the remembrance of it as a rather small-potato business.

X Int. 256. What was a small-potato business—the caucuses or the Interchangeable Tool Co.?

A. Both.

X Int. 257. It was determined by the small-potato business of the caucuses to put the small-potato business of the tool Co. on its legs, as you express it, and, according to your statement, you were directed to do that. What did you do towards furnishing money and putting the small-potato tool company on its legs?

A. I furnished no money, but obtained for the company such machinery, materials, and skilled labor as was necessary to accomplish the object named. After having done so two of the members, notably Messrs. Oliver and Harris, bravely drew forth the old stocking and put in what money was actually needed to carry the thing along for a short time.

X — 258. State, if you know, whether Mr. Hall was president of the Interchangeable Tool Co. ever since its organization.

A. I know that he was at the last I knew of the elections, and I believe he has been ever since and is now.

X Int. 259. Has not Mr. Hall had control of the mechanical department of the Interchangeable Tool Co. ever since its organization?

A. No, sir.

X Int. 260. When did he not have control of it?

A. From about April 1, 1879, to about March 1, 1880.

X Int. 261. Who had control of it during the time that you mention?

A. Mr. J. M. Adams.

X Int. 262. Do you not know of your own knowledge that Mr. Hall had control of Mr. Adams and all the other employees of the Interchangeable Tool Co.?

A. Not during the dates I have just mentioned in my last answer.

X Int. 263. Do you not know that Mr. Adams followed Mr. Hall's direction whenever Mr. Hall chose to give him any?

449 A. I do not. Had I so known and the directions did not accord with mine I should have discharged Mr. Adams.

X Int. 264. Who authorized you to employ Mr. Adams and who authorized you to discharge him if you saw fit to do so?

A. The company.

X Int. 265. Did the company authorize you to discharge him if you chose to?

A. I was placed in entire charge as managing man of the company's business, and in such position had a perfect right to do so—of course, always being expected to show cause.

X Int. 266. Was Mr. Adams aware that he was subject to your will in that particular?

A. He was.

X Int. 267. And you were the managing man of the company during that period, were you, the president having nothing to do with it, as I understand you?

A. I didn't say that the president had nothing to do with it. The president, as well as his fellow-directors, had a perfect right at any time to enter and inspect the company's shops and offices, and were never denied any such right.

X Int. 268. But you took the management of the concerns of the company?

A. I did.

X Int. 269. But permitted, nevertheless, the directors and officers to come in and look around, as I understand you?

A. There was no permission from me about it. As I said, they were free to come and go as they liked, and they did.

X Int. 270. But they were not permitted to do anything or give any directions excepting through you?

A. Different members of the company were in the habit of coming to me, asking if it would interfere with anything if they should show this friend through the shop or that friend, or get this or that done in the shop, when I invariably turned them over to Mr. Adams.

X Int. 271. Then all the workmen, as I understand you, were under the immediate supervision of Mr. Adams, and Mr. Adams was under your supervision. Was that the way it was?

A. That's the way it was; and I was under supervision of the board of directors.

450 X Int. 272. And the work was all done in the shop under the direction of Mr. Adams during the period you referred to?

A. I have every reason to believe it was.

X Int. 273. When did you first see Johnson's Exhibit C?

A. Well, it was a very short time after Mr. Johnson came to work for us.

X Int. 274. Please to fix the date a little more definitely.

A. I will say within a month. That's pretty definite.

X Int. 275. Your answer might mean a day or a week or two weeks or an hour. Can't you fix the date a little more definitely?

A. I don't believe I can, but there are certain things I remember these jaws by.

X Int. 276. Where did you first see it?

A. On the bench facing on Hudson St. I think at Mr. Johnson's right hand.

X Int. 277. Was the model then just as it is now, when you first saw it?

A. The handles were just the same, and that line which shows on the jaws just above where they hang on the screw was there, and I remember thinking that perhaps the line was left there from where the raised part would have been filed away on one of our old jaws.

X Int. 278. Did you see Mr. Johnson make the model?

A. I think I saw him working on the handles, and remember his saying to me at the time that brass was harder on a file than steel.

X Int. 279. Did you see him at work upon the jaws?

A. I couldn't state positively that I saw him at work on those particular jaws, but saw him at work on jaws or pieces somewhat similar. I always avoided, as far as possible, going within two or three feet of Mr. Johnson while he was at work, as he is very nervous and it made him more so to have any one around.

X Int. 280. Did Mr. Johnson make the model under the direction of Mr. Adams?

X Int. 281. I never heard Mr. Adams issue any directions to Mr. Johnson in regard to the model.

X Int. 282. Referring now to the handles, Exhibits 3 and 3 X, please state whether the experiment of the pins intended to form the gear between the handles was tried before the model Exhibit C was made.

A. I don't think they were.

451 X Int. 283. Then, according to your recollection, the company went from model C to the experiment of the pins in the handles to form the gearing?

A. I don't think there was any experiment about the pins at all. My impression is that the idea was to try to make a large nipper work positively, and that the pins were placed there for that purpose, as we had those large forgings on hand.

X Int. 284. Were there any nippers made by the company having a gearing between the handles opposite their fulcra, consisting of pins interlocking each other?

A. I think there were.

X Int. 285. How many?

A. That I don't remember.

X Int. 286. Of what size were they?

A. I know there was one small size and at least one large one; perhaps two large ones.

X Int. 287. Who made them?

A. I think Mr. Adams drilled a couple of the big handles, and I think I drilled one or two of the handles myself.

X Int. 288. Can you produce any of those nippers with pins in their handles?

A. I haven't got any of them.

X Int. 289. Can you produce any, I asked you.

A. I couldn't produce any unless I went to work and made them myself.

X Int. 290. Do you not know of your own knowledge that the experiment of the pins for making the gear between the handles was tried before Exhibit C was made?

(Question objected to, as the witness has said they were not put in for the purpose of experiment, as far as he knows.)

A. No, sir; I do not. It may be so, but I don't know it.

X Int. 291. You swear to that, do you, positively?

A. I have just *say* (said) I do not know. It may be so. I think that answer precludes any possibility of swearing.

X Int. 292. Do you not know that Mr. Wm. Q. Judge made a drawing of the nipper handles showing a pin gearing between them, and that that drawing was given to Mr. Adams to have
452 the pins put in the handles for the purpose of making the experiment before the model C was made?

A. No, sir; I do not.

X Int. 293. Didn't you see that drawing?

A. Don't remember ever having seen any such drawing.

X Int. 294. Please to examine the nipper I now show you and state whether there is a pin gearing between the handles.

A. Yes, sir; there is a pin gearing between the handles.

(Nipper shown to witness offered in evidence and marked Hall's Exhibit 16., J. E. B., notary public, December 8th, 1881.)

X Int. 295. State, if you recollect, whether the Interchangeable Tool Co. made any nippers like the one I have just shown you, in the spring of 1879.

A. With the exception of the pin gearing shown in the exhibit and the deep indentations cut on the top of the plates, they did.

X Int. 296. Do you swear that the Interchangeable Tool Co. did not make any nipper like that with pin gearing between the handles?

A. Yes, sir; I will swear to that, unless they did it on the sly somewhere.

X Int. 297. What kind of small nippers did the Interchangeable Tool Co. make with pin gearing between the handles?

A. None that I know of, except the one of which I have spoken in the previous answer, and I would here state that this Exhibit

No. 16 shown to me as having been made before Exhibit C was made, shows a front plate with a milling cut on it at the head of the front plate which ought to be on the back plate also if it was a genuine nipper. That cut in question was introduced by Mr. Adams at my suggestion.

X Int. 298. What milling cut do you refer to as being on the side of the nipper?

A. At the top of the plate slanting in towards the inside of the side plate. The milling cut is on the plate, which is countersunk for the heads of the screws.

X Int. 299. And you say that incline slot to which you have referred was cut in the side plate, at your suggestion to Mr. Adams, with the milling tools of the company?

453 A. Mr. Adams at my suggestion adopted the incline slot in question and had special milling tools made to cut the same. After the tools were finished all nippers manufactured had that incline slot on the plates, the object being in cutting lengths of wire to throw the strain as much towards the center of the jaws as possible and save breaking the corners of the cutting edges.

X Int. 300. And do you wish to be understood as saying that the incline slot in one of the side plates of this nipper, Exhibit 16, was cut with the milling tools used in the manufacture of the nipper after the model Exhibit C had been made and adopted by — company.

A. They may have been cut with a file or emery wheel.

X Int. 301. I understood you to say in a previous answer that the incline slot in the side plate of this nipper had been cut with a milling tool, and that if it had been made at the company's shop that slot would have been made in both side plates.

A. I think that what I said was that the plate showed a milling cut that was introduced some time after Exhibit C was made, and that no other cut of that kind had ever been previously made on nippers manufactured by the company.

X Int. 302. Referring now to the French patent granted to Mr. Hall for the nipper claimed to have been invented by Mr. Johnson, do you mean to be understood as saying in answer to question 29 that Munn & Co. prepared an application for the patent in France which described and illustrated the nipper as it is described and illustrated in the United States patent granted to Mr. Hall November 5, 1878, and that you afterwards altered the application without the knowledge of Mr. Hall so as to make it include the invention claimed by Mr. Johnson?

(Counsel reads to witness questions and answers from 29 to 32, inclusive.)

A. When Mr. Hall and myself went to Munn & Co. to apply for the United States patent one of us—I think Mr. Hall—gave directions that they should also fill out applications for the French, German, and English patents, and that the fees would be sent up in a day or two. Mr. Hall signed powers of attorney in blank, leaving the model nipper from which the drawings were to be prepared with

them. Some time afterwards, about a year, I think, I was
454 directed by the company to apply for the French patent as soon as possible, and funds placed in my hands to pay the fees—I think $100. I asked Mr. Hall whether he had not better go himself to Munn & Co., but he was so busy day-times, he said, at his business uptown that he couldn't spare the time, and, as the papers had all been filled out, all that would be necessary would be for me to go there and pay the fee. I deposited the money to the credit of the company, I think, or it may have been other moneys, and the company's check for the amount, signed for me to use for that purpose, and let the matter run along for several days, when I happened to think about the changes made in the nipper, and, not wishing to say anything about my having delayed the application, I determined to secure a perfect nipper, such as we were then turning out, and for some reason that I can't remember had to wait some time before I got one which was perfect in every respect. I took it to Munn & Co., gave it to their Mr. Walter with instructions to apply for it immediately and make his drawings in accordance with it and not with the old drawings, telling him that he might keep the nipper for his own use. The French patent was received some time afterwards, and nothing ever said or apparently noticed in the drawing. In fact, I did not think of it myself until the controversy between Mr. Henry G. Thompson and our company arose in regard to the patent. Some time in July—it may have been later—Messrs. Hall, Judge, Oliver, and myself were at my residence in Milford, and in the course of a dispute, in which I was accused of being in league with Mr. Thompson, I mentioned the matter of the French patent, which surprised them all very much, and which made them look in a different light upon my position with Mr. Thompson.

(Counsel for Hall objects to answer of witness as being irresponsive and a mere repetition of the previous examination, and gives notice of motion to strike out at the hearing.)

X Int. 303. Question repeated.
A. Yes; I do.
X Int. 304. When did the company get its nippers on the market?
A. I think in July, 1879.
X Int. 305. I find in the minutes of the company made by A. Gustam, the minutes of the meeting of the stockholders of the
455 company held at No. 71 Broadway, at the office of William Q. Judge, September 16th, 1879, in which you, as secretary of the company, reported as follows: "The factory is now producing 10 dozen nippers per day, which the company sells to Peter A. Frasse & Co. at $9 a dozen net cash." Please to look at the record of the minutes of that meeting and state if it is in your handwriting and signed by you and whether you find such a report there.

(Question is objected to, as the book of minutes referred to has not been put in evidence, and even if that extract is proven it is objected to unless the whole record is put in evidence.)

A. The record is in my handwriting, and I find such a report there.

X Int. 306. Was the report true?

A. The report was true.

X Int. 307. Now, the resolution of the board of directors instructing you to apply immediately for a French patent for the Hall nipper was passed October 7, 1879. How did it happen, if the nipper was on the market in July, 1879, and you were producing 10 dozen nippers a day on September 16, 1879, that you had to wait for a perfected nipper to take to Munn & Co. to apply for the French patent?

A. I think that about that time our supply of finished nippers had run down so low that we had to use our personal samples to fill small orders, and even borrow nippers outside. There was something wrong about the screws. There was some good reason for it, anyway.

X Int. 308. Do you mean to be understood as swearing that you couldn't get a perfected nipper to take to Munn & Co. to enable them promptly to apply for the French patent?

A. Well, I could probably have got one good enough for the purpose.

X Int. 309. Do you mean to be understood as swearing that previous to the passage of the resolution instructing you to apply immediately for the French patent Mr. Hall had signed the necessary paper to apply for the patent? I mean the resolution dated October 7, 1879.

456 A. That's what I mean.

X Int. 310. How long was it after the passage of the resolution of October 7, 1879, before you applied for the French patent?

A. I don't remember now just how long.

X Int. 311. State as near as you can recollect.

A. I should say about a month.

X Int. 312. How long was it previous to the passage of the resolution of October 7, 1879, that Mr. Hall went to Munn & Co. to apply for the French patent?

A. About one year.

X Int. 313. Did not Mr. Harris advance the money to apply for this French patent under the resolution of October 7, 1879, and did he not give you the money for that purpose?

A. I think it was Mr. Harris advanced the money; don't remember whether it was bills or check.

X Int. 314. Did not Mr. Harris and all the directors present at the time of the passage of that resolution, October 7, 1879, including yourself and Mr. Hall, understand that the French patent was to include and cover the improved nipper as then manufactured by the company?

A. I have no recollection that there was anything said about the matter.

X Int. 315. Did you not understand that the French patent was to embrace the nipper as it was then manufactured?

A. Don't believe I gave the matter a thought at the time.

X Int. 316. But you directed Munn & Co. to embrace the nipper as it was then manufactured in the French patent in the name of Mr. Hall, believing as you did at the time that the invention was Moses C. Johnson's?

A. I gave Munn & Co. such direction; didn't give Moses C. Johnson a thought.

X Int. 317. Where and when did you make the acquaintance of Mr. F. A. Prescott?

A. At the office of Wm. Q. Judge, in the fall or winter of the year 1878.

X Int. 318. Did you employ Mr. Prescott to make the application for the patent on behalf of Mr. Hall, involved in this interference?

A. I did.

457 X Int. 319. Did you contribute some of your stock in the Interchangeable Tool Co. towards paying the expenses attending the application and other expenses growing out of this contest?

A. I think I did.

X Int. 320. Did you also obtain any money from Mr. H. S. Rogers, who was then the trustee in charge of the company's assets, to be used in the payment of such expenses?

A. I did.

X Int. 321. How much of your own stock did you contribute towards that end, and how much money did you obtain from Mr. Rogers for the same purpose?

A. The stock contribution got so muddled up I couldn't give any explanation about it. I think I got $100 from Mr. Rogers.

X Int. 322. How much money, if any, did you obtain from William B. Stoddard, to be used for the same purpose?

A. I think it was $50.

X Int. 323. Did you and Mr. Stoddard go to Washington and there employ Mr. Prescott to make that application?

A. We did. We didn't go there together.

X Int. 324. But you met there, didn't you?

A. Yes, sir; we did.

X Int. 325. Mr. Stoddard was then counsel of the Interchangeable Tool Co., was *it* (he)?

A. I understand so.

X Int. 326. At the time you went to Washington to employ Mr. Prescott to apply for this patent on behalf of Mr. Hall did you believe that Mr. Johnson was the inventor?

A. I did.

X Int. 327. And did Mr. Stoddard believe so, too?

A. Well, Mr. Stoddard wouldn't say who he believed was the inventor, but smiled over the matter.

X Int. 328. Did you explain to Mr. Stoddard at that time the facts about it as they appear in the record of this case?

A. I did as well as I could.

X Int. 329. What did you pay Mr. Prescott by way of retaining fee?

A. I gave him $50 in one lump and other sums amounting to

probably $15 or $20, which were considered personal. The $50 was a retainer.

458 X Int. 330. Upon whose advice was Mr. Prescott employed to apply for this patent?

A. No one in particular.

X Int. 331. Previous to your going to Washington to employ Mr. Prescott and at the time you employed Mr. Prescott did you know that I had prepared an application for a patent for Mr. Hall for the same invention?

A. I knew nothing about it until after it was decided to employ Mr. Prescott and had made preparations to go there.

X Int. 332. How often did you go to Washington upon the business of this application?

A. I think twice.

X Int. 333. Who went with you the second time, if any one?

A. No one.

X Int. 334. Did you say at the meeting of the members of the company at the time that arrangements were made to raise the money to make this application that if the other members wouldn't contribute the money for you to go to Washington you would pay the expenses yourself, or something to that effect?

A. I don't remember saying that, although I may have said it.

X Int. 335. Previous to the making of this application did you tell any members of the company that you believed Mr. Johnson to be the inventor of the nipper involved in this interference; and, if yea, who?

A. I remember saying to some of the company—I don't remember who—that Johnson ought to be taken good care of, and we certainly were indebted to his skill for the nipper as it was.

Adjourned until 10 o'clock a. m, Friday morning, December 9, 1881.

NEW YORK, *December* 9, 1881.

Met pursuant to adjournment.

Present: Same parties.

Cross-examination of Mr. GUSTAM continued:

X Int. 336. Referring now to Mr. Hall's application for the patent, the subject-matter of which is involved in this interfer-

459 ence, did you make an arrangement with Mr. Prescott that he should divide with you his fees paid to him by the Interchangeable Tool Co. for making and prosecuting this application?

A. No, sir; I did not.

X Int. 337. Did you tell any members of the Interchangeable Tool Co. that Mr. Prescott did divide his fees with you in that matter?

A. No, sir; I did not.

X Int. 338. Did you tell any one that he did?

A. No, sir; I did not.

X Int. 339. Did he in point of fact divide his fees with you?

A. No, sir.

X Int. 340. When did you first learn that Mr. Johnson was about to make an application for a patent for this invention?

A. I never learned that he was about to make an application for a patent for this invention. If I had I should have notified the company and tried to persuade them to buy him out.

X Int. 341. When did you first learn that Mr. Johnson had a patent?

A. I think it was very near the first of November, 1880.

X Int. 342. Was that the first you knew that he had applied for a patent?

A. No, sir; it was not.

X Int. 343. When did you first learn that he had applied for a patent?

A. Some time during the summer—late in the summer, I think—of 1880.

X Int. 344. Give the date as near as you can.

A. I think about the middle of August. That's as near as I can get to it.

X Int. 345. Of whom did you first hear that Johnson had applied for a patent?

A. I don't remember whether it was first from Mr. H. G. Thompson or from some member of the Interchangeable Tool Co.; about the same time from both of them.

X Int. 346. From which of the members of the Interchangeable Tool Co. did you hear it at that time?

A. I can't remember which of them it was in particular.

X Int. 347. Did you make the fact known as soon as you heard it to the members of the Interchangeable Tool Co.?

460 A. If I heard it from some one else first, then I didn't make it known.

X Int. 348. What are the facts? Have you any recollection about it?

A. I think I had an idea that I could probably make a better arrangement to secure the patent for the company by working single-handed than if everybody should dabble in it.

X Int. 349. What do you mean by your last answer?

A. Just what I say. By everybody I don't mean the whole world.

X Int. 350. How did you expect to secure the patent for the company after Mr. Johnson had applied for the patent and assigned the invention to Mr. Henry G. Thompson?

A. I don't remember now that I had any definite plan laid out, but was confident that I could do as I have said.

X Int. 351. Did you try to get the patent for the company from Moses C. Johnson and Henry G. Thompson?

A. I did.

X Int. 352. What steps did you take towards obtaining the patent for the company?

A. I tried to find what was the least amount he would take in

stock or in cash, and submitted Mr. Thompson's propositions to the company.

X Int. 353. Was that before or after the patent was granted?

A. I rather think it was after.

X Int. 354. Had the company authorized you to make any negotiations with Mr. Thompson?

A. I don't know of any especial authorization in that particular matter. I did what I considered my duty in the case.

X Int. 355. What was Mr. Thompson's terms to you for the purchase of the patent?

A. I don't remember particularly what they were just now.

X Int. 356. Did you report them to the company?

A. Invariably.

X Int. 357. What did the company say to you?

A. Don't remember just what they said, but what they intimated was that his proposition would not be entertained.

X Int. 358. When did this take place?

A. I should say during the months of September, October, and November and perhaps December, 1880.

461 X Int. 359. In a previous question I asked you how your father spelled his name; you then declined to answer. Will you answer that question now?

A. I will.

X Int. 360. Please do so.

A. He has been in the habit of spelling it Guttstam.

X Int. 361. How did *he* come that Mr. Hall ceased to be foreman of the shop of the mechanical department of the Interchangeable Tool Co. for a time?

A. I believe it was generally agreed among the directors that as boss of a shop he was — failure, and the only thing to do was to get good men and try and rectify his errors.

X Int. 362. And so the company appointed you to take his place, as I understand you?

A. Not exactly.

X Int. 363. Did not Mr. Hall resign his position as superintendent to take charge of the affairs of an insolvent piano-forte company?

A. It is possible he may have done so. I don't remember it.

X Int. 364. Didn't the board of directors express their regret at his resignation upon the minutes of the meeting at which he resigned?

A. I presume very likely they did.

X Int. 365. Did they express their regret in your handwriting?

A. I wouldn't be surprised at that.

A. 366. Where did Mr. Hall transact his business as assignee of the insolvent piano-forte company?

A. He had his safe and books in the office of the tool Co.

X Int. 367. Didn't he have a sign up there reading as follows: "Thomas G. Hall, assignee of Walker & Co.?"

A. Yes.

— Int. 368. Were not you one of his bondsmen as such assignee?

A. I was, and him the other bondsman, too.

— Int. 369. Did not you justify in the sum of $8,000 as such bondsmen, swearing that you were worth that amount of property?

A. I don't remember what the amount was, but whatever I swore to at the time was right.

— Int. 370. What property did you have then besides stock of the Interchangeable Tool Co.?

A. I think at that time I had a piece of property in the city of New Haven.

462 X Int. 371. To be a bondsman wasn't it necessary that you should have property in the State of New York?

A. My position was explained fully to Mr. Hall's attorneys that saw the bond, and they said it was all right.

X Int. 372. Was Mr. Adams discharged from the employ of the Interchangeable Tool Co.?

A. He was given leave of absence on account of ill health, and afterwards notified that his services would not be required.

X Int. 373. Who notified him that his services would no longer be required?

A. I think it was our then secretary, Mr. Oliver.

X Int. 374. Did not you and Moses C. Johnson enter into a scheme to get Mr. Adams dismissed?

A. No, sir. When Mr. Johnson found out that Mr. Adams was going it was very hard work to keep Mr. Johnson with us.

X Int. 375. Didn't Mr. Johnson take Mr. Adams' place?

A. That is already a matter of record.

X Int. 376. That he did?

A. Yes, sir.

X Int. 377. State when it was that Mr. Adams was notified by Mr. Oliver, as you say, that his services would be no longer required.

A. Shortly after we moved up to Milford.

X Int. 378. When was that?

A. Think it was about the first of March, 1880.

X Int. 379. I read to you from the minute book of the meetings of the directors of the Interchangeable Tool Co. (counsel for Johnson objects to the reading of anything from the minute book referred to, as the said book is not in evidence) the minutes of a meeting held February 14, 1880, as follows:

"At a special meeting of the directors of the Interchangeable Tool Co., held at their office on February 14, 1880.

Present: Messrs. Hall, Oliver (J. F.), Oliver (C. H.), Harris, and Gustam.

The minutes of the previous meeting were read and adopted.

On motion, it was resolved that hereafter from this date the position of superintendent be abolished, and that the hiring and discharging of all employees of the company be done directly

463 from the office of the company by its duly authorized officers, and that such action be subject to the approval of the board of directors. The secretary was ordered to notify Mr. Adams, the present superintendent, of this resolution and to confer with

him as to his remaining in the company's employ in some suitable capacity, and to report to the board at its next meeting. The meeting then adjourned.

A. GUSTAM, *Secretary.*"

Please to look at the resolution I have just read and now hand you and state if it is in your handwriting.

A. It is.

X Int. 380. State if that resolution was passed at the time stated in the record.

A. I presume it was.

X Int. 381. Did you notify Mr. Adams, as directed, and confer with him about remaining in the employ of the company in some suitable position?

A. I suppose I did.

X Int. 382. And did Mr. Adams refuse to remain in the employ of the company?

A. I don't remember just now exactly what arrangement was made with Mr. Adams, but I believe it was one that was satisfactory to all parties concerned.

X Int. 383. At the last meeting of the board of directors of the Interchangeable Tool Co. at which you attended was not Mr. Prescott present at your request?

A. Mr. Prescott was present, but not at my request.

X Int. 384. At whose request was he present?

A. I don't know. He asked if he was intruding, and some one said, No, not at all; and I guess most of us asked him to take a seat; that he wasn't in the way.

X Int. 385. Did Mr. Prescott at that meeting propose to bribe Mr. Johnson to act in the interest of the company in this interference by selling him some of the company's property?

A. I don't know what Mr. Prescott said there to members of the company, his conversation with them having been carried on in whispers at the further end of the store in which the meeting was held.

X Int. 386. You didn't hear anything, then, that Mr. Prescott said?

464 A. Towards the close of the meeting I heard him suggest that we ought to make as harmonious a settlement as possible—that is, as between me and the company—and not indulge in recrimination, and so on; don't remember the rest.

X Int. 387. I didn't ask you anything about any controversy between you and the company. I asked you if you heard Mr. Prescott propose to the company that it should bribe Johnson.

A. No.

X Int. 388. Didn't you hear the officers of the company tell Mr. Prescott that the questions involved in the interference should be settled upon their merit at that meeting?

A. No; I can't say that I did.

X Int. 389. How did Mr. Prescott come to be present at that meeting?

A. I met Mr. Prescott in New York by accident. He told me he was going to Brooklyn. I told him that I was going to Brooklyn. He was going right over. I wasn't going until 4 o'clock. I told him where I would be. He said he didn't know that he would be in that neighborhood. I arrived at the place of meeting ahead of time, and had no sooner seated myself than in walked Mr. Prescott. I presume he had business there of his own, and probably wished to anticipate my arrival.

X Int. 388. Was that the place of the meeting of the board of the directors of the Interchangeable Tool Co. on that day?

A. It was.

X Int. 389. Was that the meeting at which the company intimated to you that your room in the future would be better than your company?

A. I think it was.

X Int. 390. Had you been in the habit of collecting various sums of money due to the company?

A. I have.

X Int. 391. Did you always turn such moneys over to the company and render a satisfactory account of them?

A. I did not always turn such moneys over to the company; but, to the best of my recollection, always turned over an account of such transactions until after Mr. Rogers, the trustee, had possession of the company's books and merchandise.

X Int. 392. Did you not send goods to England and Ger-
465 many and collect money for them and render no account to the company at all?

A. No, sir; I did not.

X Int. 393. Did you ever sell any goods to Charles Churchill & Co.?

A. I did.

X Int. 394. Did he pay you for them?

A. He did.

X Int. 395. And did you keep the money yourself or turn it into the company?

A. I kept the money myself, because I bought and paid for the goods myself.

X Int. 396. Who did you buy the goods of?

A. Different parties. I can't think of their names now. I can produce the memoranda of them.

X Int. 397. What did they consist of?

A. Cutting nippers mostly; some other goods.

X Int. 398. Cutting nippers of the Interchangeable Tool Co.?

A. Cutting nippers manufactured by the Interchangeable Tool Co.

X Int. 399. Referring again to that last meeting of the board of directors which you attended, is it not true that you invited Mr. Prescott there and endeavored to commit the company to an attempt to bribe Mr. Johnson to act in the interest of the company in this interference?

A. No, sir; it is not.

X Int. 400. Were you ever in the employ of Frost, Sturtevant & Co.?

A. Yes, sir.

X Int. 401. Why did you leave the employ of that firm?

A. Because they closed up their offices in New York and I didn't choose to go with them.

X Int. 402. Was there any discrepancy in your accounts with that firm which you couldn't explain to their satisfaction?

A. No, sir; there was not.

X Int. 403. Didn't they charge you with fraud and commence legal proceedings against you?

A. No, sir; they did not.

X Int. 404. Do you know Robert Jennings and W. H. Hartshorn?

A. I do.

A. GUSTAM.

466 ELBERT A. WITTLESEY, a witness produced on behalf of Moses C. Johnson, being duly sworn, deposes as follows:

Int. 1. What is your name, age, residence, and occupation?

A. My name is Elbert A. Wittlesey; my age is 42 years; my residence is 97 South Tenth St., Brooklyn, E. D.; my occupation is machinist.

Int. 2. Have you ever been employed by the Interchangeable Tool Co. of New York?

A. I have.

Int. 3. Please state, as near as you are able, the date of the commencement and ending of such employment.

A. I commenced April 23, 1879, and I quit either on the 3d or 4th of January, 1880.

Int. 4. What was the nature of your employment in that company?

A. I was employed as tool-maker; more especially to get up the mills and tend to the machinery.

Int. 5. Who employed you at the time you went to work for the company?

A. Mr. Adams.

Int. 6. Where was the shop of the company located during the time of your employment *in* (by) the company?

A. In the American Express building, on Hudson street.

Int. 7. Are you acquainted with Moses C. Johnson, one of the parties to this interference?

A. I am.

Int. 8. Please describe the position in the shop of the Interchangeable Tool Co. in which you worked and what position Moses C. Johnson worked.

A. I worked at the vise next to Mr. Johnson, he occupying the vise in the north corner of the room.

Int. 9. Who was the superintendent of the shop during the time you worked there?

A. Mr. Adams. I think his initials are J. M.

Int. 10. Did any one else besides Mr. Adams have any supervision of the mechanical work in the shop at that time?

A. He was superintendent all the time I was there.

Int. 11. Did or did not Mr. Thomas G. Hall have any con-
467 trol of the mechanical department in the shops of the company during the time you worked there?

(Question objected to as incompetent, as the witness is not in a position to know whether he did or not.)

A. Not to my knowledge.

Int. 12. Did or did not Mr. Thomas G. Hall personally give you any directions regarding your work during the time you were employed by the company?

A. No, sir.

Int. 13. Did or did not you ever know of Mr. Thomas G. Hall giving any directions to Moses C. Johnson regarding his work while he was at work at the vise next to you in the shops of the company in Hudson street?

(Objected to as immaterial.)

A. I don't know of his ever having given any.

Int. 14. Would you, from your place in the shop, have been likely to have known of it if any such directions had been given where Mr. Johnson was at work?

A. I couldn't say that I should.

Int. 15. Did you or did you not generally know upon what kind of work Mr. M. C. Johnson was employed?

(Objected to as immaterial.)

A. I generally knew.

Int. 16. Will you please examine the model I now show you (witness shown Johnson's Exhibit C) and state whether you know what it is and by whom it was made?

A. I do. It's a template illustrating the action of this spur and the corresponding receptacle in the opposite handle and the action of the spring on the jaws.

Int. 17. State, if you know, by whom this model was made.

A. Yes. It was made by Mr. M. C. Johnson.

Int. 18. State as nearly as you can, if you know, the time it was completed.

A. About the middle of May, 1879.

468 Int. 19. Are you acquainted with the nipper and models of nippers made by the Interchangeable Tool Co. previous to the making of the model Exhibit C?

A. I have seen some of the parts and 2 or 3 of the nippers that were around the shop at the time.

Int. 20. Does or does not the model C contain improvements over the nippers made or possessed by the company before this model C was made by Mr. Johnson?

A. It does contain improvements.

Int. 21. Please describe what those improvements are.

A. The locking of the handles so as to make them work equally and at the same speed from a line through the center of the nipper; also in the way of applying the spring and the projections over the spring, preventing pieces from getting into the interior of the nipper after being cut out.

Int. 22. State, if you know, who was the inventor of these improvements.

(Objected — on the ground that it was impossible for the witness to know.)

A. I believe Mr. M. C. Johnson was.

Int. 23. Was it your opinion at the time that this model was made that Mr. M. C. Johnson was the inventor of these improvements?

A. I thought I had changed the action of their old spring at that time and spoke to Mr. Johnson about it. That was previous to the making of this Exhibit C, and that he said that he was going to make this and that he had the same idea.

Int. 24. Was this invention and this improved nipper the subject of conversation at any time in the shop of the Interchangeable Tool Co.?

A. Mr. Johnson and I used to talk about it between ourselves.

Int. 25. Do you know what was the general opinion in the shop as to who was the inventor of this improved nipper shown by model Exhibit C?

A. The credit was generally given to Mr. Johnson.

Int. 26. State, as nearly as you can recollect, the date upon which Mr. M. C. Johnson first communicated to you his ideas embraced in the construction of the model Exhibit C or any part of it.

469 A. Well, I should say about the 7th or 8th of May or thereabouts, when he showed them all to me embodied in this Exhibit C. A few days before this Exhibit C was made he told me about them.

Int. 27. Were you intimately acquainted with Mr. M. C. Johnson about that time?

A. I was. We roomed together; was together most of the time, in and out of the shop.

Int. 28. Did you ever hear Mr. Thomas G. Hall give any directions to M. C. Johnson with regard to the construction of this model, Exhibit C?

A. I never did.

Int. 29. Did you or did you not ever hear Mr. J. M. Adams give any instruction to Mr. M. C. Johnson directing him how to make this model, Exhibit C?

A. Never did.

Int. 30. Did you ever hear in the shop or anywhere Mr. Thomas G. Hall or Mr. J. M. Adams claim to be the inventor of the combination of improvements or any of them separately embodied in Exhibit C while you were employed by the company?

A. I never did.

Int. 31. I will read you from the official letter of the Patent Office, dated June 4, 1881, declaring this interference—the subject-matter embraced it:

"The subject-matter of the interference is the body composed of the side plates, the independent fulcra for the jaw levers and hand levers, the jaw lever provided with cutting edges and with lips, and the hand levers having short arms, and a prong and notch always in engagement, combined with the V-shaped spring held by the lips of the jaw levers."

State who, in your opinion, was the original and first inventor of the foregoing combination.

A. Mr. M. C. Johnson.

Int. 32. Please examine the nipper handles I now show you (witness shown Hall's Exhibit No. 3 and 3 X) and say whether you have ever seen them before and what they are.

A. I know what they are and I think I have seen them or some similar to them.

Int. 33. Please state, as far as you know, when and where these handles were made and what they are parts of.

470 A. I can't state when and where they were made. I only remember seeing them once, and I think I put one pin in them that was broken off, at Mr. Adams' request.

Int. 34. Give the date, as near as you can, when you put in that pin.

A. Must have been in May or June, 1879; wouldn't be positive which.

Int. 35. Do you know for what purpose these handles were made?

A. I suppose to illustrate the locking of the handles together to make them work simultaneously.

Int. 36. When you first commenced to work at the shop of the Interchangeable Tool Co. were they then manufacturing nippers for the market?

A. They were not at that time. They had been some time previous.

Int. 37. Do you know why the Interchangeable Tool Co. stopped manufacturing nippers about that time?

(Objected to on the ground that's impossible for the witness to know.)

A. I supposed at the time it was to improve the tools and make them cheaper, and to make the parts interchangeable.

Int. 38. Please examine the model I now show you and say if you ever saw it before, to your knowledge.

Counsel hands witness Hall's Exhibit No. 16.

A. I have no recollection of having seen it before.

Int. 39. Please examine particularly the slot or cut at the top of the face plate which contains the counter-sink for the heads of the screws and say if you know the date at which the making of such slots or cuts was commenced.

A. I couldn't answer that. That is one of the last operations we got at.

Int. 40. Were plates with that slot ever made, to your knowledge, or were to be found on any of the nippers of the company made previous to the completion of the model Exhibit C?

A. I have no recollection of ever having seen any.

Examination-in-chief closed.

471 Cross-examination of witness by AMOS BROADNAX, Esq., of counsel for Thomas G. Hall.

X Int. 41. By whom are you employed now?

A. The Mount Vernon Manufacturing Co., No. 30 Morton St., Brooklyn, E. D.

X Int. 42. What does the Mount Vernon Manufacturing Company manufacture?

A. Shawl straps and folding scissors.

X Int. 42½. How long have you been a tool-maker?

A. I have made a specialty of that about 18 years.

X Int. 43. Do you consider yourself an expert tool-maker in all its departments?

A. I think I will rank as fair.

X Int. 44. Are you a friend of Moses C. Johnson, one of the parties to this interference?

A. I am.

X Int. 45. How long have you been such friend?

A. About 16 years.

X Int. 46. What are Mr. Johnson's habits—temperate or intemperate?

A. I believe he takes a little too much sometimes.

X Int. 47. A little too much rum, do you mean?

A. Not particularly rum—ardent liquors.

X Int. 48. In the expression rum I include all kinds of intoxicating drinks. Now, by that definition do you mean Mr. Johnson takes a little too much rum once in a while?

A. I think he does.

X Int. 49. Does he not get on a drunk and stay so some days, sometimes weeks?

A. I couldn't say as to weeks; have known him to stay so for several days.

X Int. 50. Does he not often get on sprees and stay on them long enough to unfit him to prosecute his work as a skillful tool-maker?

A. Undoubtedly he does.

X Int. 51. Is Mr. Johnson reputed to be a skillful tool-maker?

A. He is, very.

X Int. 52. Referring now to Johnson's Exhibit C, what parts of that model did you first see?

472 A. The jaws.

X Int. 53. Just as they are now?

A. I think I saw them before the bulges was filed off. I think I filed them off for him.

X Int. 54. You mean the cheeks of the jaws?

A. The cheek or extension of the jaw.

X Int. 55. Both jaws?

A. I think both jaws.

X Int. 56. Will you look at the outside and the inside of one of the jaws and tell me if you discover the marks of the milling tool?

A. Has indications of having been under mills.

X Int. 51. What is your judgment about it; has it been cut out with milling tools?

A. I should think one jaw had or has been under milling tools.

X Int. 52. Does the other jaw show any marks of milling tools?

A. No, sir.

X Int. 53. Are both of the jaws exactly of the same size?

A. Not exactly.

X Int. 54. You will understand that you are expressing your opinion as an expert tool-maker. When I ask you whether the two jaws are exactly of the same size I mean the size through their broadest dimensions—in breadth and not in thickness. I understand you to say they are not exactly of the same size, and that the one appears to have been milled and the other not. Now, which one is the larger—the one that has the marks of the milling tool on it or the other?

A. The other one. The one that has no appearance of having been milled.

X Int. 55. Referring now to the nipper handles, Hall's Exhibits 3 and 3 X, please state whether you saw those handles or handles like those with pins in them for the purpose of forming a pin gearing between the handles before or after you saw Johnson make the model Exhibit C.

A. It was afterwards.

X Int. 56. Why do you think it was afterwards?

A. Because model Exhibit C was the first thing we had in the shop showing the interlocking handles.

X Int. 57. Which in your judgment would make the best tool—nipper, I mean—one with the gearing between the handles
473 composed of pins or one with the gearing between the handles composed of cogs cut in the handle?

A. One cut in solid would be the best.

X Int. 58. Now, if you had nipper C first why should the company make or cause to be made nippers having gearing made of pins between them?

A. Either to exhibit or illustrate is the only reason I can assign for it.

X Int. 59. Why shouldn't they have made the nipper like Exhibit C to illustrate with cogs instead of pins between the handles?

A. To save time and expense, probably. To make them like Exhibit C would require a set of forgings and the expense of fitting them up; while you could show the action on a large nipper by inserting pins. We were pressed for time at that time, hurrying to get out nippers.

X Int. 60. How many nippers were made by the Interchangeable Tool Co. having a pin gearing between the handles?

A. To my knowledge, only one or two; wouldn't swear that I ever saw but one.

X Int. 61. What size was the nipper that you *were* willing to swear to?

A. It was a size larger than Exhibit C.

X Int. 62. What size do you call that?

A. Exhibit C is No. 2.

X Int. 63. And the one you say you saw with pin gearing in it, what number was that?

A. I couldn't say. We had not begun to make number four yet, and whether number 4 was made to conform to that size or not I could not say. It was somewhere near No. 4 nipper.

X Int. 64. Is that what was known as "7-in. nipper?"

A. About that.

X Int. 65. Was it a finished, completed nipper that you saw with the pin gearing between the handles?

A. It was not.

X Int. 66. You never saw any finished, completed nipper there with pin gearing between the handles?

A. Can't say that I did.

X Int. 67. Referring again to Exhibits 3 and 3 X, are those the handles in which you put the pins?

474 A. I couldn't swear they are the identical ones. They were like these.

X Int. 68. Did they have the same number of pins in them as have been in those handles?

A. I think they had one whole pin and one broken pin. I replaced the broken pin.

X Int. 69. And you, as I understand you, did not put the pins in originally, but only replaced one of the broken pins. Is that the way it was?

A. Yes, sir.

X Int. 70. Who directed you to do that?

A. Mr. Adams, our superintendent.

X Int. 71. Had you, previous to Mr. Adams bringing you the handle to replace the broken pin, seen these handles with pins in?

A. I have no recollection of having seen them.

X Int. 72. This idea of making a pin gearing between the two handles originated with some one. Now, who did it originate with?

A. I don't actually know. Mr. Adams brought me the handle to replace a broken pin, and I suppose he brought it from the office. I think he got it from Mr. Hall. I don't know. I done the work and gave it back to Mr. Adams.

X Int. 73. But your understanding at the time was that he got it from Mr. Hall?

A. I thought it came from Mr. Hall at the time.

X Int. 74. Now, do you recollect of the company's making a pin gearing between the handles in any small nipper, such as illustrated by Hall's Exhibit 16?

A. Adams put teeth in several nippers there; but don't remember whether they were pins or filed them out of the solid; were put in and went away. That's the last I ever saw of them until recently.

X Int. 75. You see that there is a pin gearing between the handles of Hall's Exhibit 16, or intended so to be. Now, do you recollect of seeing such a nipper with such a gearing at the works of the Interchangeable Tool Co.?

A. I have seen a nipper geared, but whether they were pin gearing or not that I couldn't swear to.

X Int. 76. Referring now to the handle forgings that the company had out of which these nippers had been made previous to
475 the adoption of the nipper as represented by Exhibit C, was there stock enough in such forgings to enable Mr. Adams or any one else to cut a gearing in the solid stock of the handle that would interlock when the handles were placed in the nipper?

A. It might have been done by using fine pitch.

X Int. 77. Do you know whether, in point of fact, it was done?

A. I think it was done—teeth filed in.

X Int. 78. You have a clear, distinct recollection of that, have you?

A. I am pretty sure.

X Int. 79. Have you a distinct recollection as to whether you saw such teeth filed in before or after you put the pin in the handle to replace the one that had been broken out?

A. I think the pin was put in the handle after the teeth were filed in.

X Int. 80. Who filed those teeth in?

A. Mr. Adams.

X Int. 81. Was that before or after the making of the nipper Exhibit C?

A. It was after Exhibit C had been begun. When Mr. Adams found out what Mr. Johnson was doing he put teeth in half a dozen handles.

X Int. 82. Do you recollect of seeing a model nipper made by Mr. Johnson at J. H. Jenks & Co.'s?

A. I have seen it.

X Int. 83. When did you first see that nipper?

A. I think in the fall of 1879 (1878).

X Int. 84. Where did you see it?

A. I think in Mr. Jenks' shop or over in Jersey City.

X Int. 85. Who had it over to Jersey City?

A. Mr. Johnson.

X Int. 86. Was that before or after the making of model C?

A. Long before.

X Int. 87. Please to describe exactly the peculiarities of the model nipper made by Mr. Johnson at J. H. Jenks & Co.'s.

A. It's a good deal similar to this Exhibit No. 16, with the exception of the handles not being geared together; was gotten up in little better shape and proportion.

X Int. 88. Is that the only peculiarity that you recollect in it?

A. Nothing strikes me now further.

476 X Int. 89. Don't you recollect that the long end of the jaw lever was lengthened by Mr. Johnson by dovetailing a piece on their ends?

A. They were, I think.

X Int. 90. But you wouldn't have remembered it if I hadn't called your attention to it?

A. No, sir.

X Int. 91. Now, do you recollect of Mr. Johnson altering that nipper after he went to work for the Interchangeable Tool Co.?

A. I do not.

X Int. 92. Do you recollect whether or not Mr. Johnson put new handles in that nipper after he went to work for the Interchangeable Tool Co.?

A. He probably has done it. I probably put a half dozen handles in that one nipper.

X Int. 93. What kinds of handles did you put in?

A. Regular handles we manufactured at the time.

X Int. 94. Did the handles have a cog gearing between them?

A. Had a spur and its receptacle.

X Int. 95. Now, was not that nipper used as a model nipper after which the company manufactured its nippers?

A. Certain parts of it were.

X Int. 96. What parts of it?

A. The jaws and the plates. I think we afterwards changed the plate pattern.

X Int. 97. Were the jaw templates used in manufacturing the company's nipper made from that model nipper?

A. Very near. I think we varied it a little to accommodate some drop forgings.

Cross-examination adjourned until December 10, 1881, at 10 o'clock a. m.

477 SATURDAY, *December* 10, 1881—10 o'clock a. m.

Parties met pursuant to adjournment.

Present: Parties as before.

(Witness desires to correct his answer to cross-question 83 and make it read as follows: "I think in the fall of 1878" instead of "the fall of 1879.")

X Int. 98. Now, are you certain that it was in the fall of 1878 that you first saw that nipper made by Mr. Johnson at Jenks & Co.'s?

A. It is my impression that I saw that before I went to work for the Interchangeable Tool Co.

X Int. 99. You went to work for the Interchangeable Tool Co. April 23, 1879. Now, how long before you went to work for the Interchangeable Tool Co. that you saw that nipper, which I will designate hereafter as Jenks' model nipper?

A. It was between 3 and 6 months. It is a long while to remember, 3 years back, without making special note of anything.

X Int. 100. Was the nipper finished when you first saw it?

A. I think it was all together.

X Int. 101. And a completed nipper, as I understand you?

A. I believe it was.

X Int. 102. And Mr. Johnson showed it to you the first time you ever saw it?

A. Yes.

X Int. 103. Now, can you recollect whether it was at the works of Jenks & Co. or in Jersey City that you first saw it?

A. I am not positive as to that.

X Int. 104. Can you recollect whether or not at the time you first saw that nipper Mr. Johnson was in the employ of the Interchangeable Tool Co.?

A. He was in the employ of Mr. Jenks at the time.

X Int. 105. Was he in the employ of Mr. Jenks at the time that you saw the nipper in Jersey City?

A. I am not positive that it was in Jersey City that I saw the nipper, but I am positive that he was in the employ of Mr. Jenks when I saw the nipper.

478 X Int. 106. Are you — (?) saw the nipper in Jersey City at all?

A. I am not positive as to that. My recollection of the first sight of that nipper is rather indistinct—just a casual look at it.

X Int. 107. At that time were you employed in Jersey City?

A. I was.

X Int. 108. Was Mr. Johnson in the habit of visiting you there?

A. He was.

X Int. 109. When did you leave Jersey City?

A. I think in the latter part of March, 1879.

X Int. 110. Did you go back there to reside or work?

A. I quit there for good; didn't go back there any more, either to work or to reside.

X Int. 111. And if you left Jersey City the latter part of March, 1879, it must have been previous to that that Johnson showed you the nipper there, if at all?

A. Yes, sir.

X Int. 112. And while Johnson was still in the employ of Jenks & Co.?

A. Yes.

X Int. 113. By whom were you employed in Jersey City?

A. New York Needle Company.

X Int. 114. And did you go from the employ of the New York Needle Co. to the employ of the Interchangeable Tool Co.?

A. They were the next parties I worked for.

X Int. 115. Referring now to the Jenks model nipper, you say you "tried" several sets of handles in it. Why did you try or put several sets of different handles in that nipper?

A. In setting the cut on the handles for the spur and correspond-

ing nut we used those plates as models to see that the handles were even.

X Int. 116. What plates do you mean?

A. The side plates of the Jenks nipper.

X Int. 117. And the handles in the Jenks nipper that you put in had the spur and notch forming the gear between the handles, as I understand you?

A. They had not. We abandoned that handle altogether.

X Int. 118. Do you recollect of seeing Mr. Johnson braze pieces on the inside of the handles of the Jenks nipper for the purpose of obtaining stock enough to make the gear connection between the two handles?

479 A. I do not.

X Int. 119. Do you recollect of seeing such brazed pieces on the handles of that nipper at all?

A. I do not.

X Int. 120. I don't understand why you should have used the handles of the Jenks nipper in putting the plates in the milling tools, as I understood you to say in a previous answer. Please to explain what you mean by that.

A. You must have misunderstood me. I said I placed several different handles in those plates. I refer to the new handles that we had begun to make.

X Int. 121. Then, as I understand you, you used the side plates of the Jenks model nipper to set the milling tools by to cut the spur and notch in the handle of the nipper?

A. I did at first.

X Int. 122. At the time that you went there did Mr. Adams have the milling tools by which the spur and notch in the handles were cut to form the gearing?

A. No. I made the mills.

X Int. 123. What did you make the mills from—template?

A. I used the brass handles in Exhibit C as a template.

X Int. 124. How do you identify these handles as the templates you used for that purpose?

A. By their general appearance. They were made from a couple of plates used in the bell-punch which Mr. Adams had in his possession.

X Int. 125. And were those milling tools which you made after the handles of Exhibit C, as you say, the same milling tools that the company continued to use to cut the notch and tooth in the handle up to the time you left its employ?

A. I think I made one or two sets after that, as the original ones wore out.

X Int. 126. Of the same conformation?

A. Very near.

X Int. 127. How did they differ, if at all?

A. We tried to make the notch correspond with the spur, not trying to follow the template exactly.

X Int. 128. Did you make the milling tools for the jaws also?

A. I did.

480 X Int. 129. What did you make them after?

A. I made a template to the back or outside of the original Jenks model, I think, and the template for the inside was altered to accommodate the spring and the changes made on the inside of the jaw.

X Int. 130. What changes do you mean as having been made on the inside of the jaw?

A. It was in the blade seat principally, and we milled that deeper so as to allow a projection over the spring.

X Int. 131. Then, as I understand you, you changed the template for the mills that were to cut the inside of the jaw levers so as to deepen the throat under the cutting edges and so as to cut the notch that holds the spring and forms the lips or projections against which the upper end of the spring bears. Is that the way it was?

A. About that way. We made the template so as to correspond with the inside of the jaw of Exhibit C.

X Int. 132. Then, as I understand you, the process of making the nipper is substantially this: First, a model nipper is made; second, templates are made to correspond with the several parts of the model nipper; third, milling tools are made, or mills, as they are generally called, to conform to the template; fourth, milling-vise jaws are made to conform to the shape that the nipper is to be cut to; fifth, the drop forgings are then placed in the milling-vise jaws and cut with the milling tools to the desired form. Is that the order?

A. That's substantially it. It should be done so.

X Int. 133. Did the company have any milling tools at the time you went in their employ for milling the several parts of their nippers?

A. I believe they had some old mills which we condemned.

X Int. 134. Were they used during the time that you were there for making nippers?

A. No, sir.

X Int. 135. And the nippers that were made during the time that you were there were made after the mills made by you, as you have stated?

A. They were.

X Int. 136. Now, after you went in the employ of the company did the company change the dies in which their drop forgings were made?

481 A. They did.

X Int. 137. How did the new dies differ from the old ones?

A. Well, we made the jaw longer on the lower small end and placed more stock on the projection over the spring seat. We also changed the handles to allow for the spur and notch.

X Int. 138. Is that the only difference that you recollect?

A. I believe we changed them a little. There were places that wouldn't mill up and we left a little more stock, but those were the principal changes.

X Int. 139. Would you recognize a jaw made in the old die and the new die, respectively?

A. I think I should if I saw them together; might if I saw them separately.

X Int. 140. Please to examine the jaws now shown you (two jaws handed to witness) and state which were made in the old die and which in the new.

(Question objected to, as it has not yet been shown that either of these jaws were made in either of the dies named.)

(Counsel for Hall undertakes to show that one of those jaws handed to witness was made in the old die and one in the new.)

A. I think the one with a hole in it and filed was made in the old die or previous to the other one.

X Int. 141. Do you think they were both made in the same die?

A. They were not.

X Int. 142. Isn't the head of the jaw with a hole in it broader than the head of the jaw that has no hole it, notwithstanding the fact that it has been filed?

A. It is.

X Int. 143. Don't you recollect that the jaws of the old dies were broader than the new ones, in addition to the other difference between the two that you have mentioned?

A. I can't remember that difference. We didn't use but a very few of them—perhaps 3 or 4 of them.

X Int. 144. What did you use that 3 or 4 for?

A. Just to experiment on the mills.

482 Two jaws examined and referred to by the witness as the old and new jaw are offered in evidence, the old jaw being Hall's Exhibit 17 and the new jaw Hall's Exhibit 18, J. E. B., notary public, December 10, 1881.

(Counsel for Johnson objects to the introduction of these jaws as exhibits, as they do not form the basis of a proper cross-examination, but belong to the matter of evidence-in-chief for Hall, if anything; and, further, because it has not yet been shown that they are blanks belonging to or ever belonged to or related in any way to the nippers manufactured by the Interchangeable Tool Co.; and, further, that one of them has been worked upon with tools, so as not to leave its original shape determinate.)

X Int. 145. Please to look at Hall's Exhibit No. 10 and state if you recognize it as the nipper manufactured by the Interchangeable Tool Co. after you went in their employ.

A. I do.

X Int. 146. Please to look at Hall's Exhibit No. 8 and state if you recognize that as the nipper the Interchangeable Tool Co. had been manufacturing at the time you went in their employ.

A. From its general appearance, I should judge it was.

X Int. 147. Now, please to state whether the jaws of the Exhibit No. 10 is narrower than the jaws of Exhibit No. 8.

A. They are.

X Int. 148. Now, could the jaws of Exhibit No. 8 be milled with the same tools that the jaws of Exhibit No. 10 were milled by?

A. They couldn't be held in the same vise jaws to work successfully, and I don't think they would mill up the same. I think they are scant of stock on the ends.

X Int. 149. Please to mark one of the jaws I now hand you, one that has the appearance of being milled, so that it can be distinguished from the other jaw.

(Witness marks the jaw handed him W.)

Have you marked the jaw with the letter W?

A. I have.

483 X Int. 150. Was it a part of your duty while you were in the employ of the Interchangeable Tool Co. to adjust the milling machinery?

A. It was.

X Int. 151. Please to examine the milling-vise jaws now shown you and state if you recognize them as the milling-vise jaws you made for the Interchangeable Tool Co. while you were in its employ.

A. I think Mr. Moses C. Johnson made that set of jaws. I made the mills, but I think Mr. Johnson made the jaws.

X Int. 152. When were they made?

A. I should say in June or July, 1879.

X Int. 153. Can't you state definitely whether it was in July or June?

A. I think it was in June, but won't be positive; was one of the first cuts we started.

X Int. 154. Now, please to state whether or not, in your judgment, the jaw belonging to Exhibit C, which you have marked with letter W, has been milled in the jaws which you say you think were made by Mr. Moses C. Johnson.

A. The mills have evidently been over them.

X Int. 155. In those jaws?

A. In those jaws.

X Int. 156. Could that jaw which you have marked with the letter W be milled and made in the shape it is out of one of the old jaws of the company before the alteration of the dies in the milling jaws I have shown you?

A. It would be very close work. I don't think it would clean up to that.

X Int. 157. Well, surely it couldn't be milled in those jaws and with the milling tools that match those jaws before the milling tools and the jaws were made, could it?

A. No, sir.

X Int. 158. Now, if the model C was made by the middle of May and the milling tools and vise jaws were not made until June of the same year, then the jaw marked W could not have been milled with those tools and those jaws, could it?

A. It might — gone under the mills. It might have been made previous to that and run under the mills to test them—to see that the stocks were right.

484 X Int. 159. Would that have left the marks of the milling tools in both edges of the jaw as perfectly as they are shown in the jaw?

A. Yes, if he touched it.

X Int. 160. Which side of the jaw is milled first? I mean the nipper jaw.

A. The outside or back.

X Int. 161. Now, after the outside or back has been milled, as I understand you, then the jaw of the nipper is turned over and the inside of the jaw is milled in the other end of the milling-vise jaws. Is that it?

A. That's the way we operate.

X Int. 162. Now, to mill the inside of the nipper jaw there must be stock enough in the jaw so that when it is laid down on the pins in the vise jaw there is stock enough projecting above for the milling tools to cut out the form in the nipper jaw?

A. There must be or should be.

X Int. 163. Now, if the nipper jaw which you have marked with the letter W was cut out to the form and size it is now by hand and not in the milling tools, how could it have been milled in those vise jaws on the inside? Please to lay it in the vise jaws, inside up.

A. It could be very easily done *and* by setting the mills down to it and by moving the carriage one way or the other.

X Int. 164. Now, assuming the jaw which you have marked with the letter W to have been made by hand to the size and shape that it is now before it was put in the milling tools, how could the back or outside of the nipper have been milled in those jaws? I mean the milling-vise jaws.

A. There would be no difficulty in placing that in a close-fitting mill to make it touch all over.

X Int. 165. Please to put that nipper jaw which you have marked with the letter W in the milling-vise jaws, back side up, and state whether or not when the nipper jaw is down on the supporting pins it is not below the surface of the milling-vise jaws.

A. It is.

X Int. 166. How, then, could that side of the nipper jaw be milled?

A. It could be done before the pins were put in and while the jaws were soft. That is when they are generally tested to see if they are correct.

485 X Int. 167. Which pins do you mean?

A. The pins they rest on. It could be done in the jaws after the jaws were hardened.

X Int. 168. How could it be done after the supporting pins had been put in the milling-vise jaws and the latter hardened unless the nipper jaw were packed up on the supporting pins so as to raise it above the surface of the milling-vise jaws?

A. It could be put in perfectly independent of the pins—not rest on them at all.

X Int. 169. And be held there firm enough to resist the force of the milling tools?

A. Yes, if the cut was light.

X Int. 170. You say it was a part of your duty while in the employ of the tool company to adjust the milling tools. Now, in making such adjustment, did you use the jaws of the model nipper C?

A. I might have done it. I am not certain that I ever did; couldn't say positively.

X Int. 171. Do you recollect whether you did or not?

A. I do not.

X Int. 172. Assuming that you did, would the fact of such use leave the marks of the milling tools on the model in all their perfection, as they appear upon the edges of the jaw you have marked with the letter W?

A. It would if it touched the nipper jaw of the model.

X Int. 173. That doesn't answer my question. Would it leave the marks of the milling tool on it—the mere fact of its use or adjustment—the same as if it had been cut out by the mills?

A. That would depend altogether on the man that was adjusting them. He could either make it or not.

X Int. 174. He couldn't make it, could he, without reducing the size of the model jaw?

A. He could reduce it without its being perceptible. He might make it without taking off any.

X Int. 175. Would an expert tool-maker use the several parts of his model tool to adjust his milling tools by?

A. He might.

X Int. 176. Well, is this the practice?

A. I never have as I remember of.

X Int. 177. Did you ever see Mr. Johnson do it?

A. Not that I know of.

486 (The milling-vise jaws about which the witness has been testifying offered in evidence and marked Hall's Exhibit No. 19, J. E. B., notary public, December 10, 1881.)

X Int. 178. In adjusting the milling tools, after you have them adjusted so you think they are about right, do you test them upon one or more articles to be milled to see if they are just right?

A. We do; run them right along after they are just right.

X Int. 179. Is it a rare thing to get them just right the first time?

A. After mills are hardened they require touching up and adjusting. You can turn them right, but the hardening changes them.

X Int. 180. I meant their adjustment in the milling machine.

A. It's not a difficult matter; it's a nice matter.

X Int. 181. How long did you room with Mr. Moses C. Johnson and between what dates?

A. I think May, June, July, and August; perhaps a part of September. I won't be positive as to those dates.

X Int. 182. Did you ever see the drawing of the model nipper No. 1?

A. Can't say that I have; think not.

X Int. 183. Are you acquainted with Thomas H. Thompson and Edgar L. Pope?

A. I know Tom Thompson and Ed. Pope; don't know what either of their full names are.

X Int. 184. Are they expert tool-makers?

A. They are.

X Int. 185. Was Mr. Moses C. Johnson the company's model-maker and draughtsman?

A. I don't know.

X Int. 186. About the 7th of October, 1879, were not nippers being made in large quantities by the company?

A. I think they were at that time.

X Int. 187. Could Mr. Hall or any one of the directors or managers of the company have had any difficulty in getting a nipper at that time?

(Question objected to for obvious reasons.)

A. I don't know anything about the office there. I know I could have gotten a pair if I had wanted them enough to take them.

487 X Int. 188. Could Mr. Gustam have gotten one if he wanted it, in your opinion?

(Question objected to by counsel for Johnson, as witness' opinion as to what Mr. Gustam could do is not evidence and not proper cross-examination.)

A. I should think so. I don't know.

X Int. 189. During the administration of Mr. Adams as foreman did the workmen do pretty much as they pleased in the shop?

A. No.

X Int. 190. Was all the work that was done there under the personal direction of Mr. Adams?

A. He was superintendent and supposed to direct them.

X Int. 191. Did Mr. Adams direct Mr. Johnson to make the model Exhibit C?

A. I don't think he did.

X Int. 192. He was under the direction of Mr. Adams, wasn't he?

A. He was supposed to be, but I don't think he ever directed him as to details.

X Int. 193. Was that model made in the shop of the company in the ordinary working hours of the men?

A. I think it was.

X Int. 194. About how long did it take Mr. Johnson to make it?

A. I don't remember the exact length of time. I remember his working on it; probably a day or two.

X Int. 195. How long would it take Mr. Johnson to make a regular model nipper like Hall's Exhibit No. 10 and all the special tools necessary to make it? I don't mean the mills or the milling-vise jaws. I mean nipper and other special tools, such as the taps and counter-bores, etc.

A. If he had a model like that to duplicate and no experiments to make he should make one like that in between one and two

weeks. It would depend altogether upon how nice they wanted to be made.

X Int. 196. The answer does not quite answer my question. Supposing we wanted a model nipper made of another size and all the parts had to be originally made and the special tools necessary to make it, how long would it take him to make it, either the next size larger or smaller?

488 A. It might take him from 2 to 4 weeks to make it, or, perhaps, 6 weeks, if he made all the screws, taps, and other special tools necessary to make it.

X Int. 197. How long, in your judgment, would it take Mr. Johnson to make the constructive drawings of such a nipper?

A. I should think he would make them somewhere in the neighborhood of half a day; depends upon how much of the idea he carried in his head when he started.

X Int. 198. You say you filed off for Mr. Johnson the side jaws of the nipper Exhibit C. Were the milling marks on the jaw then which you have marked with the letter W?

A. That I can't remember.

X Int. 199. Did you ever see Mr. Johnson making any drawings in the shop of the company?

A. I don't remember his making any in the shop.

X Int. 200. Please to look at the side plate in which the screw heads are located in model Exhibit 16 and state if it corresponds in size and form and the position of the holes with the corresponding side plate in the model Exhibit 10.

A. It won't go on the gauge. It isn't exactly like it, but it's very near.

X Int. 201. Now, please to state whether the side plate to which we have been referring as Exhibit 16 will fit on the gauge plate that the side plate of Exhibit 10 will fit on.

A. It will not.

X Int. 202. Are both plates, in your judgment, drilled in the same gig?

A. *There* (they) were not, evidently.

X Int. 203. In your judgment, was the futing (?) slot in the side plate of Exhibit 16 milled in the same milling fixture and with the same mill that was used in milling the side plate of Exhibit 10?

A. I couldn't say. It might have been.

X Int. 204. When that sloping slot is milled in the side plate, about which you have been testifying, does not the two top holes of the plate fix accurately on the pins of the fixture?

A. They are not tight. They are made free. It was a cast-iron fixture which we put in the milling vise.

X Int. 205. Please to examine the sloping slot in the said side plate of Exhibit 16 and state whether, in your judgment, it is milled at all.

489 A. I couldn't tell. I can't see any indication of the tool mark on it.

Cross-examination of witness adjourned until Wednesday, December 21, 1881, at 10 o'clock a. m.

NEW YORK, *December* 21, 1881—10 o'clock a. m.

Present: Same parties.

Cross-examination of Mr. WHITTELSEY continued by Mr. BROADNAX:

X Int. 206. Upon what facts do you base your belief that Moses C. Johnson was the inventor of the improvement in nippers referred to in answer to Q. 22 of your examination-in-chief?

A. Because that was the first that I had seen of those improvements combined in the nipper.

X Int. 207. Then you concluded, as I understand you, that Mr. Johnson was the inventor because you saw him making the model Exhibit C. Is that correct?

A. Substantially correct, not having seen anything of the kind before or anything spoken of that I remember.

X Int. 208. You say in answer to Q. 25 in your examination-in-chief that the credit of the invention was generally given to Mr. Johnson. Please to state who gave Mr. Johnson the credit of the invention besides yourself.

A. I think it was the general talk inside of the shop.

X Int. 209. Please to give the names of those who gave Mr. Johnson the credit of the invention.

A. I don't know that I could at present. I know it was talked about generally there in the shop.

X Int. 210. Have you ever heard Mr. J. M. Adams claim the credit for the invention himself?

A. I have recently.

X Int. 211. At the time the nipper model C was first made did Mr. Adams give Mr. Johnson the credit of the invention?

A. I don't remember his saying anything about it at that time; never heard him make a claim until recently.

490 X Int. 212. While you and Mr. Johnson were in the employ of the Interchangeable Tool Co. did you hear Mr. Johnson express a determination to apply for a patent for the invention?

A. Not while I was in the employ of the company. I left their employ about the first of January, 1880.

X Int. 213. When, if ever, did you first hear Mr. Johnson express a determination to apply for a patent of the invention in question?

A. Along in the summer of 1880; somewhere in June or July, probably.

X Int. 214. Was it after Johnson left the employ of the Interchangeable Tool Co.?

A. It was while he was in their employ.

X Int. 215. Can you fix the date?

A. It was along some time about the 20th of May.

X Int. 216. How do you fix the date?

A. By a letter I have in my possession.

X Int. 217. From Mr. Johnson?

A. No, sir.

X Int. 218. Did Mr. Johnson communicate his intention to you of taking out the patent verbally or by letter?

A. Verbally.

X Int. 219. Where did you see him at the time he made known to you his intentions in that respect?

A. Here in New York.

X Int. 220. How did he come to tell you that he was going to apply for a patent for the invention?

A. I don't know how he came to tell me. I guess I was as much in his confidence as any person.

X Int. 221. What facts or circumstances led up to the conversation about the nipper?

A. I don't know how it came about. We were eating our supper down in Fulton market, previous to going home.

X Int. 222. Did he tell you at that time that he had sold the invention to Henry G. Thompson?

A. I don't think he said he had sold it.

X Int. 223. Did he say he was about to sell it?

A. I believe he said he had offer for it.

X Int. 224. Did he say by whom the offer had been made?

491 A. He did.

X Int. 225. Please to give the name of the person who had made the offer.

A. Mr. Henry G. Thompson.

X Int. 226. What was the amount of the offer?

A. I believe he told me one thousand dollars ($1,000).

X Int. 227. Was it to be in cash or in stock of the Interchangeable Tool Co.?

A. Don't think he stated, although I understood it was to be cash. That was my impression.

X Int. 228. Did Mr. Johnson make the model Exhibit C without any directions from Mr. Adams, the superintendent?

A. I think he did.

X Int. 229. What was the first job you worked on when you went to work for the Interchangeable Tool Co.?

A. I think the first job was making templates for the mills.

X Int. 230. How long were you engaged upon that job?

A. I couldn't tell now.

X Int. 231. State as near as you can recollect.

A. Probably 2 or 3 days, making male and female templates.

X Int. 232. What were the templates for?

A. The first were for nipper jaws.

X Int. 233. What were the next ones for?

A. I think they, too, were for nipper jaws—inside.

X Int. 234. Was the first and the second templates both alike?

A. No.

X Int. 235. How did they differ? Please to explain why you made *to* two sets of templates for the nipper jaws.

A. I think we changed the inside of the jaw so as to accommodate the spring.

X Int. 236. That was immediately after you went there, as I understand you, or within a week or two?

A. I wouldn't say a week or two; it was probably within a month that I made the second set.

X Int. 237. What job were you working on when you put the pin in one of the handles Exhibits 3 and 3 X?

A. I can't remember.

X Int. 238. I read to you question and answer 37 of your examination-in-chief.

492 (Counsel reads question and answer.)

Please to state what knowledge you have upon that subject.

A. I think Mr. Adams or Mr. Johnson told me that they were going to make new tool and machine them up. I think I knew before I went to work for them. Mr. Johnson told me of the job and what they were going to do, and I went down and applied for it.

X Int. 239. After you went in the employ of the company did you and Mr. Gustam and Mr. Hall and Mr. Adams and Mr. Johnson have any conference about the improvement of the nippers?

A. I don't recollect any such conference.

X Int. 240. How long have you been in the employ of the Mount Vernon Manufacturing Co.?

A. Two years the 5th of January, 1882.

X Int. 241. You say in answer to X Q. 59 that about that time we were pressed for time, hurrying to get up nippers. Please to state what time you refer to that you were pressed for time.

A. We were hurried all the time until we turned out nippers. I think Mr. Adams promised nippers long before we had any—by the 4th of July, 1879.

X Int. 242. In answer to X Q. 92 you say that Mr. Johnson probably put new handles in the Jenks model nippers. Please to state whether he did or not, of your own knowledge.

A. We had the parts of that nipper on the bench, and I frequently used the plates to test handles, and I think he has done the same.

X Int. 243. When you say "the plates" what plates do you refer to?

A. The side plates of the Jenks nipper.

X Int. 244. Do you recollect whether Mr. Johnson made a new pair of handles for the Jenks nipper and put them in it so as to complete it as a model nipper?

A. He might have taken a pair of handles that we had made there after we got to machining them.

X Int. 245. I do not ask you what Mr. Johnson might have done, but what you recollect of his doing.

A. I wouldn't say that I recollect his doing it.

X Int. 246. I do not refer in my question to handles made after you got the milling tools to work, but what I want to know
493 is whether Mr. Johnson put a new set of handles in the Jenks nipper before you got the milling tools to work.

A. I wouldn't be positive as to that. I have an indistinct recollection of something of the kind, but whether it referred to that nipper or not I don't know.

X Int. 247. Are you willing to swear that he did not?

A. I am not.

X Int. 248. And you are not willing to swear that he did?

A. Would not swear that he did.

X Int. 249. At the time Mr. Johnson showed you the Jenks model nipper the first time did you examine it carefully?

A. I probably did—the exterior of it; didn't take it apart.

X Int. 250. What was his object in showing it to you?

A. I don't know, unless it was to show me what he was doing. We were intimate; often visited one another.

X Int. 251. What did he say about the nipper when he showed it to you?

A. I don't remember. My remembrance of the first time I saw that nipper is rather indistinct, anyhow.

X Int. 252. Were the jaws of the nipper C patterned after the jaws of the Jenks nipper?

A. There was a little variation made on the inside of the jaw.

X Int. 253. Please describe the variation.

A. It was principally in the spring seat and the projection over the same, and the throat under the cutting edges of the nipper was made a little deeper.

X Int. 254. You say in answer to X Q. 118 that you do not recollect of seeing Mr. Johnson braze pieces on the inside of the handles of the Jenks nipper for the purpose of making the cog connection between the two handles. Now, are you willing to swear that such pieces were not brazed on the handles of that nipper for that purpose?

A. No; I am not.

X Int. 255. Referring now to model C that you now have in your hand, are you willing to swear that the jaws making part of that model are the same jaws that you saw Mr. Johnson make at the works of the Interchangeable Tool Co. in May, 1879?

A. I couldn't swear to that.

X Int. 256. You say in answer to X Q. 125 that the handles of
494 that model C were made from a couple of plates used in the bell-punch which Mr. Adams had in his possession. Did Mr. Adams give those plates to Mr. Johnson to make those handles of?

A. I don't know whether he gave them to him or whether Mr. Johnson took them.

X Int. 257. Referring to the change in the dies made by the company after you went in its employ you say, in answer to X Q. 137, that more stock was placed in the inside of the jaws. Please state why more stock was placed inside of the jaws.

A. Because they didn't clean up all of them, probably.

X Int. 258. Wasn't there more stock placed in the inside of the jaw so that in cutting the seat for the spring there would be a lip left to project over the top of the spring?

A. They probably extended the lip. I know the first lot of forgings we had didn't clean up properly.

X Int. 259. You mean by the first lot of forgings those that were made before the dies were altered?

A. Yes sir. We tried a few of the old jaws and they didn't work up.

X Int. 260. In answer to X Q. 195 you say it would take Mr. Johnson from 2 to 4 weeks to make a complete model nipper like Hall Exhibit 10, or perhaps 6 weeks, if he made all the screws and taps and other special tools. Please to fix the time a little more definitely which it would take him to make such a model, including the special tools.

A. Say 4 weeks.

X Int. 261. What is Mr. Adams' reputation as an expert tool-maker?

A. I would rather not answer that question.

X Int. 262. Please to examine this nipper and state if you recollect whether it was made by the Interchangeable Tool Co. during the time you were in its employ.

A. It was not.

X Int. 263. You will observe that that nipper has a pin gearing between the handles.

A. I see it has.

X Int. 264. Now, I ask you again whether you have any recollection of seeing such a nipper made at the shop of the Interchangeable Tool Co. during the time you were in its employ?

495 A. I have not.

X Int. 265. No recollection of it at all?

A. Have no recollection of any nipper of this size being made.

(Nipper offered in evidence and marked Hall's Exhibit 20, December 21, 1881, J. E. B., notary public.)

Redirect examination of witness by THEODORE G. ELLIS, Esq., counsel for Johnson:

R. D. Int. 259. You say that Mr. J. M. Adams has recently claimed to be the inventor of the improvements that you had previously stated you believed to be the invention of M. C. Johnson. Please to state what particular parts of the improved nipper you have heard Mr. J. M. Adams claim to have invented.

A. Heard him claim the gearing of the handles together and inserting the spring without the use of the old block they used to use.

R. D. Int. 260. Have you ever heard him claim to have invented the lips over the ends of the spring?

A. I don't think he did claim that in particular.

R. D. Int. 261. Have you ever heard him say that Mr. Thomas G. Hall was the inventor of any part of the improvements in the nipper as shown in model Exhibit C?

A. I never have.

R. D. Int. 262. Have you ever heard him say that Mr. Hall did not invent any of the improvements shown in the improved nipper?

A. I have.

E. A. WHITTELSEY.

Sworn to before me this 21st day of December, 1881.

J. EDGAR BULL,

Notary Public (132), *New York County, New York.*

496 STATE OF NEW YORK, } ss:
City and County of New York, }

I, J. Edgar Bull, a notary public within and for the county of New York and State of New York, do hereby certify that the foregoing depositions of Augustus Gustam and Elbert A. Whittelsey were taken on behalf of Moses C. Johnson, in pursuance to agreement, before me, at 57 Broadway, in the city of New York, in the said county, on the 6th, 7th, 8th, 9th, 10th, and 21st days of December, 1881; that each of said witnesses was by me duly sworn before the commencement of his testimony; that the testimony of each of said witnesses was written out by myself, excepting from Q. 33 to X Q. 77, inclusive, of the deposition of Augustus Gustam, which was written out by William H. Broadnax; that the opposing party, Thomas G. Hall, and his counsel, Amos Broadnax, were present during the taking — said testimony; that said testimony was taken at 57 Broadway, in the city of New York, and was commenced at 10 o'clock a. m., on the 6th day of December, 1881, and was continued, pursuant to adjournment, on the 7th, 8th, 9th, 10th days of said month and was concluded on the 21st day of said month; that I am not connected by blood or marriage with either of said parties, nor interested directly or indirectly in the matter in controversy.

In testimony whereof I have hereunto set my hand and affixed my seal of office, at 57 Broadway, in said county, this 12th day of January, 1882.

J. EDGAR BULL,
Notary Public, New York County, New York.

497 In the United States Patent Office.

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

In interference. Cutting nippers.

Amos Broadnax, Esq., attorney for Hall.

DEAR SIR: Please take notice that in the above-entitled case, on Wednesday, the twenty-first day of December, 1881, at your office, in New York city, I will proceed to take the continued testimony of E. A. Whittelsey, pursuant to adjournment, and that on Thursday, the twenty-second day of December, 1881, at eleven o'clock in the forenoon, before some competent authority, at the office of Henry G. Thompson, 208 Chapel street, in the city of New Haven, Connecticut, I shall proceed to take the testimony of E. C. Mower, J. M. Adams, Jos. T. Higbee, Chas. A. Tomlinson, H. G. Thompson, and William G. Cook in behalf of the said Johnson, to be used in the said interference. The examination will continue from day to day until completed. You are invited to be present and cross-examine.

Yours respectfully, THEO. G. ELLIS,
Attorney for M. C. Johnson.

Hartford, Connecticut, December 13, 1881.

Due and timely service of the above notice is hereby admitted. Dec. 14th, 1881.

AMOS BROADNAX.

498 Before the Commissioner of Patents, in the Matter of the Interference between THOMAS G. HALL and MOSES C. JOHNSON for cutting nippers.

Depositions of witnesses examined on behalf of Moses C. Johnson, pursuant to the annexed notice, at the office of Henry G. Thompson, No. 208 Chapel street, in the city of New Haven, and by adjournment to the office of Julius Twiss, No. 69 Church street, in New Haven, Conn., on the 22d, 23d, 24th, 27th, and 28th days of December, 1881.

Present: Amos Broadnax, Esq., on behalf of Thomas G. Hall, and Theodore G. Ellis, Esq., on behalf of Moses C. Johnson.

JAMES M. ADAMS, of Brooklyn, New York, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by Theodore G. Ellis, Esq., counsel for Moses C. Johnson, as follows, to wit:

Ques. 1. What is your name, age, residence, and occupation?

Ans. My name is James M. Adams; forty-eight; reside in Brooklyn, New York; I am a machinist; I reside — No. 413 Wyckoff St., in the city of Brooklyn.

Ques. 2. Have you ever been employed by the Interchangeable Tool Co. of New York? If you have please state when, giving the dates of commencing and ending, as near as you can.

Ans. I have; commencing April 14th, 1879, and ending, I think, about the 20th of February, 1880.

Ques. 3. Please state in what capacity you was employed by the said company, giving your position during the whole time you were so employed.

A. Superintendent.

Ques. 4. State what were your duties as superintendent.

Ans. I had full and complete charge of the manufactory.

Ques. 5. Where was the shop of the Interchangeable Tool Company during the time you were so employed?

A. In the Express building, on Hudson St., New York. I have forgotten the number.

Ques. 6. Are you acquainted with Mr. Thomas G. Hall and with Moses C. Johnson, the parties to this interference?

499 Ans. I am.

Ques. 7. What sort of a cutting nippers was manufactured or talked of being manufactured by the Interchangeable Tool Company at the time you commenced work for said company as superintendent? Please describe its construction as near as you can.

Ans. Hall's compound cutting nipper. It was composed of two plates, two jaws, two handles, spring, spring block, stop pin, lateral pins, partly through each jaw, to hold the jaws in position while cutting; the plates, one each side, holding the jaws and handles in their position; the spring block being held to one plate by the screw and the spring fastened to the block; the other ends of the spring, that were not attached to the block, operating upon the jaws to force

them open, contact being a little above the center of the screw on which the jaws moved; the handles operating on the ends of the jaws, opposite the cutting edge.

Ques. 8. Did you or not ever see any nippers or models belonging to the said company or any officers of it, at the time of the commencement of your employment, which had any gearing, pins, or any other connection between the two handles by which they were made to move simultaneously?

Ans. I never saw any.

Ques. 9. Do you or do you not know of a model made for the Interchangeable Tool Company at the shops of J. H. Jencks & Company, of New York? If you did, state generally what you know about it.

Ans. There was a model brought there, to wit, to J. H. Jencks & Company, for the purpose of having a new model made. Mr. M. C. Johnson did most of the work upon it. The new model was composed of two plates, two jaws, two handles, spring, put together similar to the old model, the difference in the new model being in the dimensions. It was finished and accepted.

Ques. 10. Where were you at work at the time that this model was made?

Ans. For J. H. Jencks & Company.

Ques. 11. Did you see that model at the shop of the Interchangeable Tool Company after you were employed by said Co.?

Ans. I think I saw it once or twice.

Ques. 12. Was it or not ever used as a model from which nippers were manufactured for the market?

500 Ans. Not to my knowledge.

Ques. 13. Did you ever make any experiments after you went into the employ of the Interchangeable Tool Company with reference to the interlocking the handles? And, if you did, say whether or not you made any model in which the handles were geared together, and whether you recognize the model I show you.

Ans. I did; I did make a model; I recognize this as the one that I made.

(Model introduced in evidence by counsel for Johnson and marked Johnson's Exhibit "D.")

Ques. 14. Please give the dates, as nearly as you can recollect, when the model was commenced and finished.

Ans. The best of my recollection, about the middle of May, 1879. It was commenced the fore part of May. I marked it out in lines, gave it to one of my men to file it out, and finished the interlocking of the handles myself.

Ques. 15. In making this model did you or not receive suggestions or directions from Mr. Thomas G. Hall, one of the parties to this interference?

Ans. I did not.

Ques. 16. Did you or did you not ever receive any suggestion or directions from Mr. Thomas G. Hall having reference to the improve-

ment of the cutting nippers manufactured by the Interchangeable Tool Company?

Ans. I never received any directions, and he discouraged my propositions for improvements.

Ques. 17. Did you ever receive any suggestions from Mr. Thomas G. Hall with regard to improvements that were made in the cutting nippers that were made by the Interchangeable Tool Company?

Ans. I did not.

Ques. 18. Do you or do you not know of a model made at the shops of the Interchangeable Tool Company by Moses C. Johnson at or about the time you say you made your model "Ex. D?"

Ans. I do.

Ques. 19. Please examine the model I now show you and state if you know what it is and who made it.

(Witness is shown model Johnson's "Ex. C.")

501 Ans. It is a new skeleton model of Hall's cutting nipper made by M. C. Johnson.

Ques. 20. Did you see Mr. Johnson at work in making that model?

Ans. I did.

Ques. 21. State, if you know, what the handles are made of.

Ans. Made of brass from the slide of an alarm register which I had in my possession.

Ques. 22. State, if you know, what the jaws were made of.

Ans. They were made from a pair of old jaws; I should have said made from a pair of old jaw forgings.

Ques. 23. By what means, if you know, were those forgings given their present shapes and dimensions?

Ans. A part of the cutting end was removed and reforged to the dimensions required. I think their present shape *were* (was) made with our tools in the shop.

Ques. 24. What tools were used to give the original forgings their present finished shape?

Ans. The milling machine was the principal one. By that I mean the mills in connection with the machine.

Ques. 25. From what model or pattern were the mills made which you say you think gave the finished shape to these jaws?

Ans. I think we had a few templates.

Ques. 26. What were these templates of; what part of the jaw?

Ans. I do not recollect.

Ques. 27. Was or was not this model "Ex. C" the first you ever saw which was provided with the two lips coming nearly or quite together in front of or above the ends of the spring?

Ans. It is the first and only one I ever saw.

Ques. 28. State, if you know, whose invention the placing of these lips upon a pair of cutting nippers was.

Ans. Moses C. Johnson.

Ques. 29. Will you please further examine model "Ex. C" and state whether or not this is the first model or nipper you ever saw in which the handles were interlocked by means of a stud or projec-

tion on one handle working into a socket or depression in the other?

Ans. It is.

Ques. 30. State, if you know, whose invention that construction is and what led to it.

Ans. Hand-milling machine, the vice which holds the handles

502 Ans. Moses C. Johnson's invention. I told Mr. Johnson to take the model "Ex. D" and so construct the interlocking arrangement as to make it with one cut. This model, "Ex. C," was the result.

Ques. 31. Please explain more fully what you mean by making it with one cut.

Ans. If made like "Ex. D" it would take several operations with the machine; but as made in "Ex. C" it would be made with one operation.

Ques. 32. State the kind of machine you refer to by "machine." being fed through by hand upon the handle instead of being fed through with power.

Ques. 33. I will read to you from the official letter of the United States Patent Office dated June 14, 1881, what is therein stated as being the subject-matter involved in this interference: "The subject-matter of the interference is the body composed of the side plates, the independent fulcra for the jaw levers and hand levers, the jaw levers provided with cutting edges and with lips, and the hand levers having short arms and a prong and notch always in engagement, combined with the V-shaped spring held by the lips of the jaw levers." Please state, to the best of your knowledge and belief, who is the inventor of the foregoing combination.

Ans. Moses C. Johnson.

Ques. 34. Was or was there not, to your knowledge, any conversation amongst the men in the shop of the Interchangeable Tool Company as to who was the inventor of the improvements in the nippers introduced after the model "C" was made?

Ans. There was.

Ques. 35. In such conversations who were generally credited with having invented the improvements in the nippers?

Ans. Mr. M. C. Johnson.

Ques. 36. Have you a good recollection of all the different kinds of nippers that were made by the Interchangeable Tool Company while you were there employed, and could you say whether or not a certain pair of nippers, if they were shown you, were made in the shop?

Ans. I could.

Ques. 37. Please examine the nippers I now show you and say if, to the best of your knowledge, they were or were not made

503 and put together in the shop of the Interchangeable Tool Company while you were employed by said Co.

(Witness shown Hall's Exhibit No. 16.)

Ans. They were not.

Ques. 38. Please examine the circular I now show you, which

purports to be a circular of the Interchangeable Tool Company and contains a drawing illustrating a cutting nipper, and say whether or not that drawing is a fair illustration of the cutting nippers made by the Interchangeable Tool Company at the time of the commencement of your employment by the said company.

(Witness is shown Johnson's Ex. "A.")

Ans. It is.

Ques. 39. State, if you know, how much stock the company had on hand adapted to be manufactured into such nippers at the time referred to in the previous question.

Ans. I estimated a thousand pair, more or less. I did not count them.

Ques. 40. How much work, if any, and what was it, had been performed upon that material?

Ans. A large number of the handles, jaws, and plates were drilled in their rough state, but not so many plates drilled as jaws and handles.

Ques. 41. What was finally done with this material?

Ans. It was boxed up and sold for old scrap.

Ques. 42. State whether or not you ever had any conversations with Thomas G. Hall with regard to the proposed improvements in the nippers manufactured by the company.

Ans. I have.

Ques. 43. Did you, in those conversations, explain to him what the proposed improvements were? And, if you did, state, so far as you recollect, what you showed him and what conversation you had upon that subject.

Ans. I did. I proposed on the first day of my engagement with the tool company to throw out all that internal or inside arrangement, leaving only the spring. I proposed to throw out the brass block, the screw which holds the block, and save the drilling
504 of the two holes in the plates and tapping one hole. Mr. Hall's reply to me was that it could not be done, as he had been over the whole ground himself.

Ques. 44. Did Mr. Hall, in that conversation or in any subsequent conversation, mention to you that he had made any improvements on the nipper as it existed at that time?

Ans. He did not.

Ques. 45. When you went into the employ of the Interchangeable Tool Company who engaged you to act as superintendent?

Ans. Mr. A. Gustam.

Ques. 46. Who was the business manager of the company during the time you were superintendent?

Ans. Mr. A. Gustam.

Ques. 47. Was there or was there not any other person or officer of the company to whom you looked for directions or to whom you were responsible except Mr. A. Gustam?

Ans. I was not.

Ques. 48. Please look at the nipper handles I now show you,

(witness is now shown Hall's Ex. No. 3 and Hall's Ex. No. 3 X), and tell me if you recognize them and have ever seen them before.

Ans. They look like a pair we made under my instruction.

Ques. 49. State, if you know, who did the work and what was done under your instruction.

Ans. Mr. M. C. Johnson did most of the work, if not all, with the exception of inserting these pins—interlocking pins.

Ques. 50. Who inserted the interlocking pins, if you know?

Ans. I did.

Ques. 51. Did you do it by any one's direction or of your own accord? State fully how you came to insert those pins.

Ans. I inserted them of my own accord. We were getting up this size—the large nipper—for Mr. Frasse for an exhibit at the American Institute fair. We had two handle forgings made, but were imperfect, so we took two of the old forgings and worked them up into a kind of model for the exhibit. We had not time to make the model.

Ques. 52. Please look at the nippers I now show you, marked Hall's Exhibit 20, and say whether or not, to your knowl-
505 edge, they were made in the shop of the Interchangeable Tool Company during the time you were superintendent.

Ans. They were.

Ques. 53. State, if you know, who made them.

Ans. Mr. M. C. Johnson made most of them. I think I put the interlocking pins in and the stop screw.

Ques. 54. Do you know Mr. E. A. Whittlesey, who was a workman at the shop of the Interchangeable Tool Company at the time you were superintendent?

Ans. I do.

Ques. 55. Upon what sort of work was he employed?

Ans. Mostly in making the mills for milling the different parts.

Ques. 56. Did he construct the mills for making the improved nipper of the Interchangeable Tool Company which is shown by Hall's Ex. No. 10, which I now show you?

Ans. He did.

Ques. 57. From what, as a model or pattern, did he construct the mills for cutting the inner side of the jaws and jaw levers?

Ans. He used the jaws. I think we used one jaw as a model or template; also the same with one handle.

Ques. 58. One jaw of what? Explain yourself more fully.

Ans. In making two jaws for the nipper there is a possibility of not being exactly alike in all respects, so we take one jaw and form the mill to that. We had but little time was the reason for using the jaw instead of the template made for the purpose. The templates were not made, which would probably take several weeks, and to save that delay we used the jaw for forming the mill.

Ques. 59. What jaw did you use—the jaw of what nipper?

Ans. One of the jaws of Johnson's "Ex. C."

Ques. 60. Then, as I understand you, the jaws of Johnson's Ex. C were made before the construction of any milling tool by which they could be cut out. Is that so?

(Objected to by counsel as leading.)

Ans. It is so in their present shape.

Ques. 61. Will you please carefully examine both jaws of Johnson's Ex. C and see if you discover any marks of a milling tool upon one of the jaws?

506 Ans. I do.

Ques. 62. How would you account for those marks?

Ans. In trying the jaw into the milling fixture for the purpose of testing the mills after they were completed and ready for use. The mill revolving was a little too close, hence the marks that are shown.

Cross-examined by AMOS BROADNAX, Esq., counsel for Hall:

X Ques. 63. When did you go in the employ of J. H. Jencks & Company?

Ans. About the first of September, 1878.

X Ques. 64. Where was their shop located?

Ans. In New York, on the corner of Centre and Hester streets.

X Ques. 65. Which corner?

Ans. It was opposite the hotel on the corner next to Canal street.

X Ques. 66. On which corner?

Ans. It would be on the southeast corner.

X Ques. 67. Is the shop there still?

Ans. It is not.

X Ques. 68. Where is it? State, if you know.

Ans. He moved to Waterbury, Conn.

X Ques. 69. Is he there still?

Ans. I do not know.

X Ques. 70. Was you in the employ of J. H. Jencks & Co. at the time that Johnson came there to work?

Ans. I was.

X Ques. 71. Where did you first see Mr. Thomas G. Hall?

Ans. In Jencks & Company's shop.

X Ques. 72. What brought Mr. Hall there?

Ans. To leave a model nipper there, as I understood.

X Ques. 73. Did Mr. Hall bring the model down to Jencks & Co.'s to have the model nipper made after?

Ans. I think he brought a nipper. I don't know as it was a model.

X Ques. 74. Did you see the nipper Mr. Hall brought there at the time he brought it?

Ans. I don't think I did.

507 X Ques. 75. When did you first see the nipper that Mr. Hall brought to Jencks & Company's?

Ans. I do not recollect.

X Ques. 76. Where were you when you first saw it?

Ans. I do not recollect.

X Ques. 77. Were you in the shop of J. H. Jencks & Co.?

Ans. At the time I spoke of I was there.

X Ques. 78. Were you in the shop of J. H. Jencks & Co. at the

time you first saw the nipper—I mean the nippers Mr. Hall brought there?

Ans. My memory is not distinct about that nipper, as I was in another department.

X Ques. 79. Are you sure that Mr. Hall brought a nipper there at all?

Ans. My memory is indistinct about the nipper, as I said before.

X Ques. 80. Why did you swear that Mr. Hall brought a nipper there for in your examination-in-chief if, you didn't recollect whether he did or not?

Ans. I remember I seeing a nipper there. Mr. Hall and Mr. Gustam were in frequently and I cannot say which brought it.

X Ques. 81. Did you read Mr. Gustam's testimony in this case?

Ans. I did not.

X Ques. 81. Did anybody tell you what Mr. Gustam had sworn to?

Ans. No one did.

X Ques. 82. Did any one tell you anything that Mr. Gustam swore to?

Ans. They did not.

X Ques. 83. Have you seen a copy of Mr. Gustam's testimony in this case?

Ans. I have not.

X Ques. 84. Have you seen a copy of Mr. Johnson's testimony in this case?

Ans. I have not.

X Ques. 83. Have you seen any part of it?

Ans. I have not.

X Ques. 84. Don't know what he swore to at all?

Ans. Could not tell one thing.

X Ques. 85. Have you talked with anybody about Mr. Johnson's or Mr. Gustam's testimony in this case?

508 Ans. I have spoken about the case.

X Ques. 86. Question repeated.

Ans. The same answer. It has been referred to in conversation.

X Ques. 87. With whom?

Ans. Mr. Thompson—Mr. Henry G. Thompson.

X Ques. 88. When?

Ans. Just previous to my testimony.

X Ques. 89. Is that the only time that Mr. Thompson said anything to you about it?

Ans. It is.

X Ques. 90. How often has Mr. Thompson talked with you about this case?

Ans. Twice before this morning.

X Ques. 91. When was that?

Ans. Once two weeks ago last Monday, and once the Friday previous.

X Ques. 92. Where?

Ans. The first time in Brooklyn, the second time in New York.

X Ques. 93. Please to repeat the conversation you had with Mr. Thompson about this case.

Ans. He asked me if I would give testimony in the suit pending between him and Mr. Hall, I think, in regard to a nipper.

X Ques. 94. Was that in the first conversation?

Ans. It was.

X Ques. 95. Is that all he said on the first occasion?

Ans. I replied to him that I would tell the truth in regard to the case. He replied that is all I want of you. That is the substance of the first conversation.

X Ques. 96. Did he not tell you what was very important for him to prove?

Ans. I think he said it was in regard to Johnson's patent claim for a nipper.

X Ques. 97. Did not Mr. Thompson explain to you that it was very important for him to prove that Mr. Johnson was the inventor of this nipper?

Ans. I don't remember that he did.

X Ques. 98. Did you ever claim to be the inventor of this nipper?

Ans. I did not.

X Ques. 99. Nor any part of it?

509 Ans. I claimed to have made some improvements.

X Ques. 100. What improvements did you claim to have made?

Ans. The interlocking of the handles with a section of a gear, as shown in Johnson's Ex. D; also placing the adjustable stop screw in the handle, instead of a pin through the two plates of the nipper, as shown in Hall's Ex. No. 10, and the throwing out of the brass spring block.

X Ques. 101. Do you claim to be the inventor of the gear connection between the two handles, as shown by Johnson's Ex. D?

Ans. I do not.

X Ques. 102. What do you mean by saying that you claim to have made the improvement of the interlocking gear between the two handles, in answer to question one hundred?

Ans. I claim to have improved the nipper by applying gearing to it, but do not claim to be the inventor of the connection of two handles by gearing.

X Ques. 103. I did not ask you whether you claimed to be the inventor of a gear connection between two handles, but I did ask you and I now repeat the question whether you claimed to be the inventor of the improvement upon the Hall nipper, which improvement consists of the section of cog gearing between the two handles, as shown in your Ex. D?

Ans. The idea of a gear connection between the two handles on the Hall nipper was original with me, as far as I know.

X Ques. 104. Did you tell Mr. Thompson that you claimed that improvement upon that nipper as yours?

Ans. I do not remember.

X Ques. 105. Did you claim to any one to be the inventor of the improvement on the Hall nipper, now claimed by Moses C. Johnson?

Ans. I did not.

X Ques. 106. Have you never claimed to any one that you was the inventor of the subject-matter of this interference?

Ans. I have not.

X Ques. 107. You swear to that positively?

Ans. I do.

X Ques. 108. Can't you recollect whether you told Mr. Thomson that you was the inventor of any part of this nipper?

Ans. I have always said that I was the author of improvements on the old nipper, never claiming the gearing of two handles as my invention, only as applied to the Hall nipper.

510 X Ques. 109. That does not answer my question.

Ans. In the sense that I use the word improvement.

X Ques. 110. Did you explain to Mr. Thompson that you claimed any of the improvements upon the Hall nipper; and, if so, upon what improvements did you tell him that you claimed?

Ans. I did. I had thrown out the spring block which was in the old Hall nipper; also applied sections of gear to interlock the handles.

X Ques. 111. What did Mr. Thompson say in reply?

Ans. I do not recollect.

X Ques. 112. When did you tell Mr. Thompson that you claimed the improvements you have mentioned?

Ans. I do not recollect the date.

X Ques. 113. State as near as you can recollect.

Ans. A year ago last summer.

X Ques. 114. Can you state what time it was a year ago last summer?

Ans. I think it was either June, July, or August.

X Ques. 115. Where were you when you had your interview with Mr. Thompson?

Ans. In Brooklyn, New York.

X Ques. 116. Whereabouts in Brooklyn?

Ans. On the corner of Plymouth and Pearl Sts.

X Ques. 117. Was — in the street or on some one's premises?

Ans. At my place of business.

X Ques. 118. Is that your present place of business?

Ans. It is.

X Ques. 119. Are you sure now that you had that interview with Mr. Thompson in the summer of 1880—I mean the interview at which you explained to him that you claimed the improvements on the Hall nipper that you have mentioned?

Ans. I am.

X Ques. 120. Can't you call to mind any circumstance that will enable you to fix the date approximately of that interview?

Ans. I cannot now.

X Ques. 121. Did Mr. Thompson explain to you that Mr. Moses C. Johnson had applied for a patent for his improvement upon the Hall nipper at that interview?

Ans. I think he said Mr. Johnson had or was going to apply for a patent.

511 X Ques. 122. Of whom did you first hear that Mr. Johnson had or was going to apply for a patent for his improvements upon the Hall patent nipper?

Ans. I do not recollect.

X Ques. 123. Do you recollect where you was when you first heard it?

Ans. I do not. It was either at my place of business or at my home, in Brooklyn.

X Ques. 124. Why do you think that it was either at your place of business or at your home, in Brooklyn?

Ans. Because I had callers from the manufactory at Milford, Conn., at my place of business and at my home also.

X Ques. 125. Was it hot weather? Were the doors and windows of the shop open when you first heard that Mr. Johnson had or was going to apply for a patent for these improvements upon the Hall nipper?

Ans. I do not know. I had callers from the manufactory at Milford from early summer till into the fall, I should say, or late in the summer. I cannot tell who first told me of Johnson's intentions.

X Ques. 126. Were your callers from the factory in Milford upon the subject of the nipper?

Ans. They were not especially, merely friendly.

X Ques. 127. Please to give the names of the persons who called upon you during that summer from the factory, in Milford.

Ans. Mr. Pope, Mr. Hills, Mr. Pierce, Mr. Underhill, Mr. McMahon, Mr. Murry, Mr. Ashley. There may be others, I do not remember now.

X Ques. 128. Did Mr. Gustam, Mr. Johnson, or Mr. Henry G. Thompson call upon you about that time?

Ans. Mr. Thompson called, as before stated, but neither Mr. Gustam or Mr. Johnson.

Adjourned to December 23, 1881, at 10 o'clock a. m.

512 DECEMBER 23D, 1881—10 a. m.

Parties meet pursuant to adjournment. Counsel present as before.

X Ques. 129. Which of the parties mentioned by you in answer to cross-question 127 told you that Mr. Johnson had applied or was about to apply for a patent on this nipper?

Ans. I do not recollect.

X Ques. 130. Do you recollect whether either of them told you?

Ans. I know that some of them did.

X Ques. 131. Did either of those gentlemen have any interest in this controversy?

Ans. Not to my knowledge.

X Ques. 132. Why should they have mentioned the fact to you that Mr. Johnson had applied or was about to apply for a patent?

Ans. I do not know.

X Ques. 133. When you told Mr. Thompson that you was the inventor of the improvements you have mentioned as yours upon this

nipper what was the substance of his reply? State as near as you can recollect.

Ans. He asked me if the elongation of the lip on each jaw to prevent the chips or cuttings from falling in into the inside was my invention. I replied I had no claim upon it. I thought it belonged to Mr. M. C. Johnson.

X Ques. 134. Is that the substance of the whole conversation that you and Mr. Thompson had about the nipper at that time?

Ans. It was his principal errand, as near as I can recollect, and the substance of the interview.

X Ques. 135. I understand that (you) went from the employ of J. H. Jencks & Co. in the employ of the Interchangeable Tool Company?

Ans. I did indirectly; perhaps two weeks intervening; during which time I was not employed at all.

X Ques. 136. After you was employed by the Interchangeable Tool Company what was the first thing you did in its service?

Ans. I made propositions for improvements of the nipper.

X Ques. 137. To whom did you make these propositions?

513 Ans. First to Mr. A. Gustam, secondly to Mr. Thomas G. Hall; to both in the same afternoon of the first day of my employment.

X Ques. 138. When you first made your proposition of improvements in the nipper to Mr. Gustam was Mr. Hall present when your interview with Mr. Gustam commenced?

Ans. He was not.

X Ques. 139. At that interview with Mr. Gustam did Mr. Hall become present before the interview closed?

Ans. He did.

X Ques. 140. Now, at that interview what improvements upon the nipper did you propose to Mr. Hall and to Mr. Gustam?

Ans. I proposed to throw out the brass spring block, the screw for holding the block, and the drilling of the hole in each plate and the tapping of one hole, and had mentioned of some method to make the jaws operate together.

X Ques. 141. Who was present at that interview beside yourself, Mr. Gustam, and Mr. Hall?

Ans. No one.

X Ques. 142. Where did it take place?

Ans. In the office of the Interchangeable Tool Company, in the American Express building, on Hudson street, New York.

X Ques. 143. How long did it continue?

Ans. I should say about two hours.

X Ques. 144. You say at that interview you proposed to throw away the brass block and the screw that holds the block, so as to avoid the drilling and tapping of the holes by which the brass block is held; I mean, of course, the brass block as it appears in Hall Ex. No. 8. Please to state whether that is the brass block which you refer to.

Ans. There is a mistake or misunderstanding in regard to the reason for throwing out the brass spring block. I did not propose

to throw out the brass block to save drilling and tapping, but because they were superfluous. My idea was to save the expense of the block, screw, and drilling and tapping of the holes. I refer, of course, to the brass block which appears in Hall's Ex. No. 8 in which the V-shaped spring sets.

X Ques. 145. In proposing to throw away the brass block that holds the spring, at the interview between yourself, Mr. Hall, and Mr. Gustam, how did you propose to hold the spring in its proper position between the jaws?

514 Ans. The exact manner of holding the spring was not fully matured at that interview, but thought it could be held by its own pressure upon the jaws.

X Ques. 146. Was that the plan of holding the spring that you proposed at that interview?

Ans. I think I proposed another plan, so as to make the spring assist in making the jaws operate together while cutting.

X Ques. 147. Please describe that plan.

Ans. During the interview I made a spring with the two upper ends bent outward, and made a notch in each jaw into which I inserted the bent ends referred to.

X Ques. 148. Please to take a piece of paper and make a pen-and-ink sketch of the spring referred to in your last answer, showing its relation to the jaws.

(Witness makes a pen-and-ink sketch in answer to counsel.)

Ans. I have made the sketch as requested and produce it.

X Ques. 149. Please to mark the jaws on the sketch with the letter A and the side plate with the letter B and the spring with the letter C, and please to mark the projection at the top of the spring, where it sinks into the jaw, with the letter *d*.

Ans. I have marked the drawing as requested.

(Drawing offered in evidence for the purpose of illustrating the witness's testimony and marked Hall's Ex. No. 21.)

X Ques. 150. Referring now to this sketch which you have made, was it your idea that the spring should be supported between the jaws upon the projections *d*?

Ans. It was not wholly. The projections referred to on the spring was intended to hold the spring in position and to assist in the operation of the jaws while cutting, and the pressure of the sides of the spring under the projection against the jaws to throw them open.

X Ques. 151. In your sketch you show the jaws of the nipper closed and the spring open. Is that the way you propose to make it?

Ans. I don't know as the spring is open to its full extent. It is not necessary to close the spring together.

X Ques. 152. Well, is that the way a skillful tool-maker would make that arrangement in practice?

515 Ans. A skillful tool-maker would experiment upon the tension of the spring to get the most out of it without injury to the spring.

X Ques. 153. If the arrangement was made as shown by your sketch, a clipping cut by the nipper would fall right down in the spring, would it not, or would be apt to get in between the two sides of the spring?

Ans. It would; but the sketch was not made with regard to the harmony of the parts, but to show how the spring was held.

X Ques. 154. I understand that the sketch was made merely to illustrate the idea, and the object of my questions was subsequently to give you an opportunity to state how you would make it in practice. Now, with that explanation, I ask you whether, in practice, you would not make the spring to close or so that it would be closed or nearly so when the jaws were closed?

Ans. I would make the spring to be open as far as possible and do its work.

X Ques. 155. And, as I understand you, when the jaws are closed you would have the spring wide open as possible and have it do its work of opening the jaws?

Ans. I should; the limit being the space allowed for the spring.

X Ques. 156. When you made these suggestions about doing away with the brass block and holding the spring as you have suggested, what did Mr. Hall and Mr. Gustam say in reply to your suggestions?

Ans. There was no definite way in which the spring should be held in that conversation. I conceived the idea, and tried the experiment with the spring as represented in this sketch, and threw it away as worthless at the interview or during the interview.

X Ques. 157. Did Mr. Hall condemn it?

Ans. After the experiment was tried and condemned by myself, before Mr. Hall was present, he, Mr. Hall, after coming in, said that he had tried something similar. I do not remember his exact words.

X Ques. 158. Why did you condemn that plan?

Ans. It did not operate as I anticipated.

X Ques. 159. In what respect did it fail to operate as you anticipated?

Ans. In controlling the movement of the jaws while cutting.

X Ques. 160. How did you expect that spring to control the movement of the jaws while cutting?

516 Ans. I did not expect that it would control them.

X Ques. 161. What do you mean, then, when you say that it failed to operate as you anticipated in controlling the movement of the jaws while cutting?

Ans. I mean, by wanting to try the experiment to see if the spring would prevent the irregular motion of the jaws while cutting.

X Ques. 162. I do not understand your answer; it does not seem to be responsive or intelligent. Please to read the question and answer over.

Ans. I meant to say that I tried the experiment with the spring to see if it would control the action of the jaws while cutting, or how much it would control them, if any. After the experiment I considered it worthless.

X Ques. 163. How would it be possible for that spring to control

the action of the jaws while cutting; how could that spring have any influence in controlling the jaws while cutting?

Ans. I could not tell without the experiment to what extent, if any.

X Ques. 164. And you tried the experiment, as I understand you, and found that it did not succeed and therefore condemned it?

Ans. That is the idea.

X Ques. 165. Now, upon what nipper did you try that experiment?

Ans. On what is known as the Hall nipper, given to me by Mr. Gustam.

X Ques. 166. Was it like this nipper, Hall's Exhibit 8?

Ans. I cannot say as it was complete in all of its parts, but should say the same size and pattern.

X Ques. 167. Well, did you make that experiment upon a pair of completed nippers, or did you get together the unfinished parts of a nipper for the purpose of making the experiment?

Ans. I had nothing to do with getting the parts—that is, in selecting the parts. I cannot say that all parts were finished, though they might have been. As near as I can recollect, he passed me a pair of nippers. I did not examine them, only as far as I wanted to use them.

X Ques. 168. Now, in making that experiment, if Mr. Gustam handed you a pair of completed nippers, such as the Interchangeable Tool Company had been making, you had to take off one of the side plates and take out the spring and the brass block that holds
517 it and file in the jaws—the recess that received the projections *d* on the spring. Now, do you recollect of doing that?

Ans. I do.

X Ques. 169. And the experiment must have been made upon a pair of completed nippers?

Ans. Not necessarily. We had the jaws, plates, and handles; further than that I cannot say as to its completion.

X Ques. 170. Was it a pair of nippers that had been hardened or tempered?

Ans. I do not recollect.

X Ques. 171. How long did it take you to make the experiment?

Ans. I should say half an hour.

X Ques. 172. After you had made the experiment what did you do with the nippers?

Ans. They remained in the office until Mr. Hall came in.

X Ques. 173. How long was that after you had completed the experiment?

Ans. Only a few minutes.

X Ques. 174. Did you show the experiment to Mr. Hall?

Ans. I don't remember whether I passed them to Mr. Hall or Mr. Gustam passed them to him.

X Ques. 175. Mr. Hall's attention was called to the experiment at that time?

Ans. As nearly as I recollect, his attention was called to the experiment at that time.

X Ques. 176. What did Mr. Hall say of the experiment?

Ans. That he had tried a similar experiment, and that it would not work.

X Ques. 177. Now, at this interview, when this experiment was tried, and which you say occurred, as you think, on the first day of your service in the Interchangeable Tool Company, did you suggest the idea of the gearing between the handles?

Ans. I did not.

X Ques. 178. After you got through with the interview and experiment about which you have been testifying, what did you do next for the Interchangeable Tool Co.?

A. My next move was to prepare a room for new machinery, picking up all of the old work and forgings and putting it into boxes, moving all of their machinery, or nearly all, to one part of the shop out of the way, I assisting the men to do the work.

518 X Ques. 179. This machinery which you refer to is the machinery which the company had on hand when you went into their employ, as I understand you?

—. ——.

X Ques. 180. Why did you move the machinery all up, in one side of the room?

Ans. To get it out of the way as much as possible.

X Ques. 181. Out of the way of what?

Ans. Out of the way of the new machinery that was come in to take its place.

X Ques. 182. What did that old machinery consist of that you moved?

Ans. Milling machines, drilling machines, polishing machines, blower.

X Ques. 183. Was any of that old machinery used after you went into the employ of the company?

Ans. Not to any extent, with the exception of the blower for the furnace.

X Ques. 184. Was any of the old milling machines used after you went there?

Ans. Not to my knowledge.

X Ques. 185. When you moved this old machinery out of the way had the company purchased new machinery?

Ans. They are not.

X Ques. 186. Well, after you got the old machinery out of the way, what then did you do?

Ans. We went to work on tools for the manufacture of the nipper and purchasing new machinery.

X Ques. 187. Did you go to work upon tools for the manufacture of the nipper before you purchased the new machinery?

Ans. About the same time.

X Ques. 188. Who purchased the new machinery?

Ans. I made the selections at Pratt & Whitney's, of Hartford, and Mr. Gustam arranged for the payment.

X Ques. 189. How often did you visit Hartford, purchasing the machinery?

Ans. Our purchases were made at different intervals, varying from twenty-four hours to several weeks.

X Ques. 190. Who accompanied you upon your visits to Hartford?

519 Ans. Generally Mr. Gustam.

X Ques. 191. Any one else?

Ans. I think Mr. Hall accompanied me and Mr. Gustman once, and I think Mr. Hall went once alone with me.

X Ques. 192. How long was it, after you went into the employ of the company, before you got your new machinery up and in operation?

Ans. Several months.

X Ques. 193. How long was it before you got your milling tools in operation?

Ans. I should say, to the best of my recollection, between two and three months.

X Ques. 194. Then it must have been about the first of July, 1879, when you got your milling tools in operation. That would be about two months and one-half after you went in the employ of the company.

Ans. I cannot give the dates, but I think some of the first cuts were made in the month of June, and perhaps all.

X Ques. 195. Who made the mills and milling tools?

Ans. Mr. Whittelsey. I mean E. A. Whittelsey.

X Ques. 196. Did Mr. Whittelsey work on the milling machines and adjust them?

Ans. I think Mr. Whittelsey and Mr. Johnson both did the adjusting. Mr. Whittelsey's time was spent mostly upon the making of the mills, and Mr. Johnson's time mostly upon fixtures and model.

X Ques. 197. Is it not the duty of the man who makes the mills to put them in the milling machines and adjust them and see that they are perfect?

Ans. Not necessarily so.

X Ques. 198. Is not that the usual practice?

Ans. Not in all shops.

X Ques. 199. Was not that the practice in the shop of the Interchangeable Tool Company during the time you were in their employ as superintendent?

Ans. Not wholly. Mr. Johnson and Mr. Whittelsey worked together to bring out the mills and fixtures complete. Mr. Johnson might be adjusting his fixtures for holding the parts and trying the mills at the same time—that is, Mr. Johnson might be obliged

520 to adjust and Mr. Whittlesey might be obliged to adjust, for their own convenience. I now refer to the large milling machines.

X Ques. 200. Did Mr. Johnson make any of the "mills?"

Ans. I think he did some of the smaller ones.

X Ques. 201. During the time that Mr. Whittelsey was there?

Ans. To the best of my recollection, he did.

X Ques. 202. When was it when Mr. Johnson made some of the small "mills?"

Ans. I do not recollect.

X Ques. 203. How long was he at work on them?

Ans. I don't recollect.

X Ques. 204. Did not Mr. Whittlesey make the "mills" for the company by contract?

Ans. He did not.

X Ques. 205. Who employed Mr. Johnson?

Ans. I engaged him for the company.

X Ques. 206. When did Mr. Johnson go to work for the company?

Ans. I think he commenced on the Monday following my engagement with them.

X Ques. 207. Did you commence with them on Monday?

Ans. I did.

X Ques. 208. Do you know Wm. Q. Judge?

Ans. I am slightly acquainted with him.

X Ques. 209. Was you ever at his office?

Ans. I think only once.

X Ques. 210. Who was with you?

Ans. Mr. Gustam.

X Ques. 211. Any one else?

Ans. Possibly Mr. Charles Oliver; but I am not positive.

X Ques. 212. Who did you meet?

Ans. Mr. Judge. That (is) all, to the best of my recollection.

X Ques. 213. Were you ever there with Mr. Thomas G. Hall?

Ans. Not to my recollection.

X Ques. 214. Did you ever meet Mr. Thomas G. Hall there?

Ans. Not to my recollection.

X Ques. 215. Where was Mr. Judge's office when you was there?

Ans. I think at No. 71 Broadway.

521 X Ques. 216. Are you sure you were there only once?

Ans. To the best of my recollection now.

X Ques. 217. When was that?

Ans. The day I entered their employment—I mean the employment of the company.

X Ques. 218. How did you come to go there?

Ans. By invitation of Mr. Gustam.

X Ques. 219. Was it not J. L. Oliver that you met there instead of Charles Oliver?

Ans. It was not.

X Ques. 220. Did you have any conference while there about any improvements on the nipper?

Ans. I did not, to the best of my recollection.

X Ques. 221. Do you swear that you did not meet Mr. Hall at Mr. Judge's office?

Ans. To the best of my recollection, I did not.

X Ques. 222. Never?

Ans. I don't remember of ever seeing Mr. Hall in Wm. Q. Judge's office.

X Ques. 223. How often did you see Mr. Oliver there?

Ans. I think I met him there once.

X Ques. 224. And only once?

Ans. Once only.

X Ques. 225. Do you swear that at the time you was at Mr. Judge's office there was nothing said about making a gear connection between the handles of the nipper opposite their fulcrum?

Ans. I am positive there was not.

X Ques. 226. Did you ever receive or see a pencil sketch or a pen-and-ink sketch made by Mr. Judge showing a cog or pin gearing between the handles of the nipper?

Ans. To the best of my recollection, I never did.

X Ques. 227. Did Mr. Hall ever bring you such a drawing?

Ans. To the best of my recollection, he never did.

X Ques. 228. Did any one bring you such a drawing or show you such a drawing about the time you went in the employ of the company?

Ans. Not to my recollection.

X Ques. 229. Please to look at the pencil sketch I now show you, marked Hall's Ex. No. 9, and state if you did not see such a sketch about the time you went in the employ of the Interchangeable Tool Company.

522 Ans. I did not.

X Ques. 230. Did you ever see such a sketch before or a sketch substantially like that during the first month that you were in the employ of the Interchangeable Tool Company?

Ans. I never did; only what I made myself.

X Ques. 231. Did you make such a sketch as that yourself substantially?

Ans. Not to my recollection, though I might have made one for my own use?

X Ques. 232. Do you recollect of making one?

Ans. I do not at this time.

X Ques. 233. How long had you been in the employ of the Interchangeable Tool Company before you commenced to make the model Ex. D?

Ans. Several weeks, more or less.

X Ques. 234. Well, give some idea as to how many weeks.

Ans. I should say, to the best of my recollection, about three weeks, but I cannot remember the date.

X Ques. 235. Did you make it yourself?

Ans. I drew the lines and gave it to one of my men to file up, I making the teeth myself.

X Ques. 236. How long was it from the time you commenced to make the model to the time you got it complete?

Ans. I should say about ten days.

X Ques. 237. Did you make that model before Mr. Johnson made the model Ex. C?

Ans. Before the model was completed.

X Ques. 238. Did you tell Mr. Johnson to make the model Ex. C?

Ans. I gave him orders to work upon it, and he completed it.

X Ques. 239. Did anybody else work on the model Ex. C besides Mr. Johnson?

Ans. Not to my recollection.

X Ques. 240. Please to give the name of the man that filed up the jaws of Ex. D before you cut the teeth in the handles.

Ans. Thomas Connors.

X Ques. 241. I understand you to say that you laid out the lines on the plates forming the handles and that Thomas Connors filed the plates down to your lines, all excepting the teeth, and those you filed in yourself?

523 Ans. That is correct.

X Ques. 242. And is that true of the jaws also?

Ans. I am not positive about the jaws, but I think he filed them to my lines.

X Ques. 243. Do you recollect before that model was made of having any conference or conferences with Mr. Whittlesey, Mr. Hall, Mr. Gustam, and Mr. Johnson about improving the nipper?

Ans. With Mr. Hall, the first day of my employment; that was the substance of all our conversation upon the improvement with Mr. Gustam and others frequently.

X Ques. 244. Well (whom) do you mean by others?

Ans. Mr. Whittlesey, Mr. Johnson, and, I think, two other workmen.

X Ques. 245. When you got the model Ex. D completed did you show it to Mr. Hall?

Ans. Not at that time.

X Ques. 246. Do you recollect of having any conference with Mr. Whittlesey, Mr. Hall, Mr. Johnson, and Mr. Gustam about improving the nipper when these gentlemen I have mentioned were all present?

Ans. To the best of my recollection, I do not.

X Ques. 247. Have you mentioned all the formal conferences you recollect of having had with any of these gentlemen about improving this nipper before the model Ex. D was made? If you have not please do so.

Ans. I cannot specify the times. They were frequent. We had no formal conference before the model Ex. D was made, except the first one with Mr. Hall and Mr. Gustam on the first day of my engagement with the company.

X Ques. 248. After you had got the model Ex. D made, who did you show it to first?

Ans. To the best of my recollection, Mr. Gustam.

X Ques. 249. What did Mr. Gustam say about it?

Ans. He seemed very much pleased, and said you have got it, or to that effect.

X Ques. 250. Did he give you any directions respecting it?

Ans. Not to my recollection.

X Ques. 251. How long after you had model D made was it before you showed it to Mr. Hall?

524 Ans. I do not recollect.

X Ques. 252. State as near as you can.

Ans. It might have been two or three days or a week before Mr. Hall saw it.

X Ques. 253. Did you not take pains to show it to Mr. Hall?

Ans. Most likely I did.

X Ques. 254. Well, do you recollect whether you did or not?

Ans. I always took pains to show the improvements to Mr. Hall, and presume I did in this instance.

X Ques. 255. How many models like Ex. D did you make or cause to be made?

Ans. Only one.

X Ques. 256. Only one like that, or substantially like that?

Ans. To the best of my knowledge, I completed only one model like Ex. D.

X Ques. 257. You say "completed;" do you mean by that that you made parts of a model like Ex. D in addition to the complete model as it now appears?

Ans. I mean to say that I only made one model and one of each of its parts. I might have spoiled one of the jaws in making and thrown it away, replacing it by a new one, but not to the best of my recollection.

X Ques. 258. Was there ever a spring in the model Ex. D?

Ans. I do not recollect.

X Ques. 259. What did Mr. Hall say when you showed him the model Ex. D?

Ans. I don't recollect the words; he seemed highly pleased and approved of it.

X Ques. 260. After that, as I understand it, you directed Mr. Johnson to make the model Ex. C. Is that the order in which the thing progressed?

Ans. It is not. He had already been at work on a part of the model Ex. C.

X Ques. 261. Do you mean before you commenced to make the model Ex. D?

Ans. I do.

X Ques. 262. You stated upon your examination-in-chief that you gave Mr. Johnson the model Ex. D and told him to make one with a single tooth and a corresponding cavity, and that he thereupon made model Ex. C. Was that the truth?

525 (Question objected to by counsel for Johnson, as witness has made no such statement in testimony-in-chief.)

(Counsel for Hall remarks that is a good way to prompt a witness, but he insists nevertheless that the witness did say so substantially.)

(Counsel for Johnson insists that counsel for Hall has no right to make erroneous assumptions in his questions, and requests that the answer referred to may be read to the witness.)

Ans. I did not so state.

X Ques. 263. I read to you question and answer No. 30 of your examination-in chief:

Counsel reads: "State, if you know, whose invention that construction is and what led to it."

Ans. "Moses C. Johnson's invention. I told Mr. Johnson to take the model Ex. D and so construct the interlocking arrangement as to make it with one cut. This model C was the result."

Now, in the face of that answer, do you swear that Mr. Johnson did not make the model C after the model D and in conformity with your instruction?

Ans. He made the model C after the model D was completed. I mean he finished model C after model D was made.

X Ques. 264. Was your answer to question 30 of your examination-in-chief, which I have read to you, the truth?

Ans. To the best of my recollection.

X Ques. 265. Don't you know whether it was true or not?

Ans. It is true, to the best of my recollection.

X Ques. 266. How could Mr. Johnson be the inventor of that construction when, in point of fact, you gave him the model D and told him how you wanted the model C made?

Ans. My directions to Mr. Johnson were general, with one exception, to wit, so construct as to make it with one cut on the machine, and the result was the model Ex. C, with one tooth and one cavity operating together.

X Ques. 267. Now, what invention was there in the change made by Mr. Johnson from the model D to the model C, in so far as the cog connection is concerned, between the handles?

526 Ans. The invention consisted in the improvement of model C over model D, as in model D several cuts would be required to form the lock, whereas in model C only one was required.

X Ques. 268. Now, it appears by your testimony, which I have read to you, that you told Johnson to take the model Ex. D. and so construct the interlocking arrangement as to make it with one cut, and that Mr. Johnson did so. Now, whose invention was that, yours or Mr. Johnson's?

Ans. The demanding of one cut was mine, but the shape of the tooth and notch and general construction was Mr. Johnson's.

X Ques. 269. Please to point out what invention there is in the shape of the tooth and the notch beyond what you suggested to Mr. Johnson when you told him to make it with one cut. Would not any one that had sense enough to put two and two together make it as Mr. Johnson did after what you told him?

Ans. I consider the design and form of any part of a machine an invention. To the second part of the question I say I think not.

X Ques. 270. Now, Mr. Adams, please to state whether in point of fact the cog connection in model C is made in making the nipper, practically, by one cut of the milling tool.

Ans. One cut upon each handle.

Adjourned to December 24, 1881, at 10 o'clock a. m.

DECEMBER 24TH, 1881.

Parties met pursuant to adjournment.

Present: Counsel as before.

X Ques. 271. Do you recollect whether or not you had a spring in your model Ex. D?

Ans. I do not; though there might have been.

X Ques. 272. If you did not have a spring in the model, what could you have made the notches in the inside of the jaws for just above their fulcra?

Ans. The notch was made to represent the place to insert a spring.

527 X Ques. 273. You observe that the notches are there?

Ans. Yes, sir.

X Ques. 274. Has this model Ex. D. been in your possession ever since it was made?

Ans. It has not.

X Ques. 275. In whose possession has it been?

Ans. In the shop of the Interchangeable Tool Co.

X Ques. 276. Was it made in the shop of that company?

Ans. It was.

X Ques. 277. And in the time and pay of that Co.?

Ans. It was.

X Ques. 278. Who took it away from the shop of that company?

Ans. I did.

X Ques. 279. Did you take it with the knowledge and consent of the tool company?

Ans. I asked the consent of no one. I do not know whether they knew of it or not.

X Ques. 280. How did you come to carry off the property of the company without its knowledge or consent?

Ans. Most of the property belonged to me.

X Ques. 281. What part of the property in the model belonged to you?

Ans. The stock of which the jaws and handles were made.

X Ques. 282. So you think that authorized you to carry off the whole of it?

Ans. The plate and screws had been condemned as worthless. My authority in their employ I considered sufficient to take it to my home.

X Ques. 283. When did you take it away from the shop of the company?

Ans. I do not remember.

X Ques. 284. Has it been in your possession ever since you took it away from the company?

Ans. Up to the present time it has.

X Ques. 285. Did you not consider the cog connection between the handles of the nipper a valuable improvement upon the Hall nipper?

Ans. I did.

X Ques. 286. Did you apply for a patent for it?

528 Ans. I did not.

X Ques. 287. Did you express an intention of applying for a patent for it?

Ans. I did not, to the best of my recollection.

X Ques. 288. When you and Mr. Moses C. Johnson were at work for J. H. Jencks & Co. did you work together in the same room?

Ans. Not always.

X Ques. 289. Were you both working in the same room when Johnson made the model nipper there for the Interchangeable Tool Company?

Ans. I will explain: J. H. Jencks & Co. occupied two rooms; the one on the third floor and one on the fourth. Mr. Johnson's place was in the upper room while making the model nipper. I had charge of a part of the work, which was being made in both rooms, so that I was in both rooms several times daily.

X Ques. 290. What did Johnson make the model nipper of at Jencks and Company's.

Ans. To the best of my recollection, the parts were furnished by Mr. Thomas G. Hall or Mr. A. Gustam.

X Ques. 291. By the "parts" do you mean the drop forgings of which the Interchangeable Tool Co. had been making their nipper?

Ans. I don't know whether they were drop forgings or not; but I distinctly remember Mr. Johnson saying to me that the parts furnished or some of them were too small for the dimensions required for the new model.

X Ques. 292. Do you know whether the parts furnished were the forgings of which the Interchangeable Tool Co. had been making their nipper; whether the forgings were drop forgings or not, and whether the jaws were drilled or not?

Ans. I am not positive about the forgings, but think they were the regular drop forgings used in the nipper. I think they were not drilled.

X Ques. 293. Do you recollect of Mr. Johnson dovetailing a piece on the long end of the jaw lever to obtain the necessary length?

Ans. I do.

X Ques. 294. Now, after Mr. Johnson went to work for the Interchangeable Tool Company, do you recollect of his brazing pieces of metal on the inside of the handles of the Jencks model nipper about opposite their fulcra?

529 Ans. I can't state positively.

X Ques. 295. Have you an indistinct recollection that he did?

Ans. He reported to me that the piece dovetailed into the jaw lever was loose. I told him it must be fastened, but do not remember whether this repairing was on the handles or the jaw, or both.

X Ques. 296. Do you recollect of Mr. Johnson's putting a new pair of handles in the Jencks model nipper after he went in the employ of the Interchangeable Tool Co.?

Ans. I do not.

X Ques. 297. Don't you recollect that pieces were brazed on the inside of the handles of the Jencks model nipper, and that cog gear-

ing was cut in the pieces so brazed on the handle so as to make a cog connection between the two handles?

Ans. I do not.

X Ques. 298. Do you swear that this was not done in the shop of the Interchangeable Tool Co.?

Ans. I will not swear either way; I am not positive.

X Ques. 299. Please to examine Hall's Ex. 20 and state, if you recollect, whether you put the pins in the handles opposite their fulcra for the purpose of making the cog connection between the handles.

Ans. To the best of my recollection I did.

X Ques. 300. Was that nipper made while Mr. Whittlesey was in the employ of the Interchangeable Tool Co.?

Ans. It might have been commenced, but think it was not finished during his stay with the Co.

X Ques. 301. How many nipper handles did you put pins in for the purpose of making the gear connection between the handles?

Ans. I do not recollect.

X Ques. 302. State approximately, as near as you can recollect.

Ans. I should say several sets, to the best of my recollection.

X Ques. 303. In what sizes of nipper handles did you place the pins?

Ans. *I* (in) two sizes.

X Ques. 304. In the size of Ex. 20 and in the size of Ex. 8?

Ans. I did.

X Ques. 305. Please to examine Ex. 16 and say whether you find a pin gearing between the two handles.

Ans. I do.

530 X Ques. 306. Please to state whether or not you put those pins in the handle or caused them to be put in at the shop of the Interchangeable Tool Company.

Ans. I think I did.

X Ques. 307. When did you put them in or cause them to be put in?

Ans. I do not recollect the time.

X Ques. 308. Did you put or cause to be put such pins in any nipper handles before the model Ex. D was made?

Ans. To the best of my recollection I did.

X Ques. 309. Upon whose request or suggestion did you put them in?

Ans. Without any suggestion or request.

X Ques. 310. You did it of your own motion, then, as I understand you?

A. I did.

X Ques. 311. By way of experiment to see how the nipper would work with a cog connection between the handles?

Ans. *I* (it) was.

X Ques. 312. At the shop of the Interchangeable Tool Co.?

Ans. *I* (it) was.

X Ques. 313. How long had you been in the employ of the Inter-

changeable Tool Co. before the company changed its dies in which the company made its drop forgings?

Ans. We commenced very soon upon the new models by which to alter the dies.

X Ques. 314. Then, as I understand you, after you went into the employ of the Interchangeable Tool Co. you made a new model nipper, and after that new model the new dies were made?

Ans. That is correct.

X Ques. 315. What size was that nipper?

Ans. No. 2, as shown by Ex. No. 10.

X Ques. 316. Who made that model nipper after which the new dies were made?

Ans. Mr. M. C. Johnson made it wholly or in part. He made the model principally.

X Ques. 317. Did Mr. Johnson make a drawing of that model nipper?

Ans. Not to my knowledge.

531 X Ques. 318. Don't you recollect of Mr. Johnson's making a drawing at his own house as overtime of a nipper?

Ans. I do.

X Ques. 319. State, as nearly as you can recollect, when Mr. Johnson made that drawing.

Ans. In the latter part of the summer of 1879.

X Ques. 320. Where was Mr. Johnson living when he made the drawing?

Ans. Boarding on Hudson street, in New York.

X Ques. 321. Was it a drawing of the nipper of the size of Ex. 10?

Ans. It was.

X Ques. 322. Do you recollect of Mr. Johnson ever making a drawing of the nipper of the size of Ex. 10?

Ans. I do not.

X Ques. 323. Of what size of the nipper was the drawing that Mr. Johnson made in overtime, as you have stated?

Ans. Large size, as shown in Ex. No. 20.

X Ques. 324. Do you recollect of Mr. Johnson making a model nipper for the Interchangeable Tool Company of the No. 1 size of the nipper?

Ans. I never saw a model of that size while in their employ.

X Ques. 325. Did you leave the employ of the company before the company moved to Milford?

Ans. At the time they moved. My last work was to give directions about taking down the machinery and boxing for shipment.

X Ques. 326. But you did not accompany the company to Milford, as I understand you?

Ans. I did not.

X Ques. 327. Where did you see the model nipper of the No. 1 size?

Ans. In New York.

X Ques. 328. In whose possession was the nipper when you saw it?

Ans. Mr. Henry G. Thompson's.

X Ques. 329. When did you see it, and how often?

Ans. Since the commencement of this case. I cannot give the date; about the first of December, 1881. It might have been a little later, and only once.

X Ques. 330. Who made that model nipper of the No. 1 size that you saw in the possession of Mr. Thompson?

532 Ans. I do not know.

X Ques. 331. Did Mr. Thompson tell you who made it?

Ans. I do not recollect.

X Ques. 332. How many model nippers did Mr. Thompson have—I mean of the different sizes?

Ans. I do not know.

X Ques. 333. Did you see any besides the model of the No. 1 size?

Ans. I did not.

X Ques. 334. And you have no knowledge, as I understand you, as to where and when that model was made?

Ans. I made two drawings, about the last of the year 1879, and they must have been made after that.

X Ques. 335. What were the drawings of?

Ans. Of nipper, three inches and one-half long, and known as No. 1.

X Ques. 336. Were both drawings of the same sized nipper?

Ans. They were.

X Ques. 337. Who did you make the drawings for?

Ans. The Interchangeable Tool Company.

X Ques. 338. Why did you make two drawings of the same nipper?

Ans. To see if I would like a different bow in the handle, that being the only difference between the two drawings.

X Ques. 339. Now, these drawings were made in the latter part of the year of 1879. Was it in Nov. or Dec. that they were made?

Ans. I commenced those drawings, at my own house, in the evening of Thanksgiving or Christmas. I do not now recollect which.

X Ques. 340. Please to consider carefully and state whether or not Mr. Moses C. Johnson did not make the model of the No. 1 size nipper at the company's shop in New York.

Ans. Not to my knowledge.

X Ques. 341. He could not *of* (have) made it there without your knowledge, could he?

Ans. I think not.

X Ques. 342. Please to look at this drawing, marked Hall's Ex. No. 1, and state, if you know, who made it and when it was made.

Ans. I think, by examining that drawing, I have seen it before; but it had entirely passed away from my memory, and that
533 it was made by Mr. Johnson in the shop of the Interchangeable Tool Company.

X Ques. 343. State, as near as you can recollect, when it was made.

Ans. I should say some time in the month of May, 1879.

X Ques. 344. How do you identify the drawing as having been made by Mr. Johnson at the time and place you have mentioned?

Ans. From a conversation Mr. Johnson and I had about the shape of the lower end of the jaw lever.

X Ques. 345. Please to state what conversation you had with Mr. Johnson about the shape of the lower end of the jaw lever.

Ans. It was in regard to having the jaw straight from a point opposite the fulcrum to the lower end instead of a circular cut, as in the old jaw, as it would make the jaw stronger and easier in making the tools.

X Ques. 346. By the old jaw do you mean the jaws of the nipper No. 2 or of the old nipper as it was when you went in the employ of the Interchangeable Tool Co.?

Ans. As it was in the old nipper.

X Ques. 347. Returning now again to Jencks' model nipper, did Mr. Johnson make a new model nipper of the No. 2 size, after which all of the company's nippers of that size were made, in addition to the Jencks model nipper and in addition to and after the skeleton model Ex. C was made?

Ans. I do not remember whether he made a new model complete or used parts of the Jencks model. He must have made new model handles, as they were entirely different in shape.

X Ques. 348. Don't you recollect that the jaws of the old die were considerably broader than the jaws of the new die, and don't you recollect that there was more stock in the new jaw under the throat, to get the lips over the top of the spring, in the new jaw than in the old?

Ans. I distinctly recollect the reduction in the width of the jaw of the new forgings and increase of stock at the throat.

X Ques. 249. Would not such changes necessitate the making of a new model nipper or the changing of the Jencks model nipper, in the particulars referred to in your last answer, to make the new dies by?

Ans. It would.

534 X Ques 250. Now, do you recollect whether the Jencks model nipper was altered or whether a new model nipper was made to make the new dies by?

Ans. I do not.

X Ques. 251. Do you consider yourself an expert tool-maker?

Ans. That is my reputation with one of the best firms in the country.

X Ques. 252. Now, in the manufacture of tools—this nipper, for example—you commence, as I understand it, with making a model nipper. You then make from that model nipper a duplicate of such of its parts as may be necessary, from which you make the dies in which the drop forgings are to be made. You then make templets, from the original model, and from the templets you make the milling tools. Please to state if I have described correctly the order of procedure in such cases?

Ans. You are correct, as a general rule, but we often vary from that course.

X Ques. 253. In the case of the manufacture of this nipper did you have a duplicate handle and a duplicate jaw made for the purpose of making the new dies, and, if you did have such parts made, did you and Mr. Hall take them to Hartford, to the Colt's Patent Fire-Arms Manufacturing Co., to have the new dies made?

Ans. I am not positive about the duplicate parts neither am I that Mr. Hall accompanied me at that time to Colt's Patent Fire-Arms Manufacturing Company.

X Ques. 254. Can you swear that such parts were not made and that Mr. Hall did not accompany you to the Colt's Patent Fire-Arms Manufacturing Company?

Ans. I cannot.

X Ques. 255. Where did you last see the Jencks model nipper?

Ans. To the best of my recollection, at the shop on Hudson St., in New York.

X Ques. 256. About when?

Ans. Do not recollect. I have no idea of the date.

X Ques. 257. Have you any knowledge or information as to where that nipper is?

Ans. I have not.

X Ques. 258. Did it disappear before you left the employ of the Company?

535 Ans. I do not know when it disappeared.

X Ques. 259. If that nipper or the jaws of that nipper were used as a model by which the company's nippers were manufactured, it could not have disappeared without you missing it, could it?

Ans. It might, for the dimensions of a new model were changed so that we would have no further use for referring to the old model. I refer to the Jencks model.

X Ques. 260. So you mean to be understood as saying that the nippers manufactured by the company were not the same as the model nipper from which the templates, gauges, and "mills" were made?

Ans. I do not.

X Ques. 261. What do you mean by saying that "the dimensions of a new model were changed so that we would have no further use for referring to the old model. I refer to the Jencks model?"

Ans. I mean that the dimensions of the model by which the tools were made were different from those of the Jencks model.

X. Ques. 262. Then, in point of fact, as I understand you, you did have a new model nipper in addition to the Jencks model by which the new dies and nippers were manufactured?

Ans. We had a new model sufficiently perfect by which to make our tools.

X Ques. 263. Now, was that new model which was sufficiently perfect from which to make your tools the Jencks model made over, or was it another model in addition to the Jencks model?

Ans. It was another model.

X Ques. 264. Where is that model?

Ans. On this table, and marked Johnson's Ex. C.

X Ques. 265. And did you make the die, templets, gauges, and milling tools after that model?

Ans. We made the templets, milling tools, and, I think, the gauges.

X Ques. 266. And what did you make the dies after?

Ans. I think we made new parts for the dies.

X Ques. 267. Do you mean new jaws?

Ans. New jaws and new handles, I think, but my mind is not clear about that. We were in a great hurry for the alteration of the dies.

Adjourned to December 27, 1881, at 10 a. m.

536 DECEMBER 27, 1881—10 a. m.

Met pursuant to adjournment.

Counsel present as before.

X Ques. 268. In answer to X Ques. 265 you said: "We made the templets, milling tools, and, I think, the gauges" after the model Ex. C. Please to state which of these you made first.

Ans. After the model, the templets would be made first.

X Ques. 269. How long did it take to make the templets?

Ans. To make the templets for the whole model would probably take a whole week or thereabouts, but I think a complete set were not made. We used the model some to save time—that is, we used the model to make the mills in part.

X Ques. 270. Do you mean to be understood as saying that you used the model or some parts of the model to form the mills by instead of the templets?

Ans. That is my impression now.

X Ques. 271. Well, can you swear that you did?

Ans. I am quite positive.

X Ques. 272. But can you swear certainly that you did?

Ans. I don't recollect; Mr. Johnson had the immediate charge of that work.

X Ques. 273. Can you state certainly that the jaws now making part of the model "Ex. C" are the same jaws that first made a part of that model?

Ans. To the best of my recollection, they are.

X Ques. 274. Have they any peculiarity or mark upon them by which you can identify them as the same jaws?

Ans. There is the mark m which we had on our original jaws, meaning model or standing for model. Their general appearance gives me the impression that they are the same.

X Ques. 275. Please point out the letter m as being in the model.

Ans. (Witness points out the letter scratched in the right-hand jaw when the model is turned with the jaws uppermost.) I mean the jaw with the milling marks on the inside and outside edges.

X Ques. 276. Was that letter put on the model at the time it was made to identify it as the model nipper?

Ans. It was put on to indicate the model jaw.

537 X Ques. 277. Well, when?

Ans. I do not recollect.

X Ques. 278. Well, do you recollect of seeing it when the model was at the works of the Interchangeable Tool Co.?

Ans. I have that impression, but am not positive.

X Ques. 279. Could you distinguish a nipper jaw made in the old dies from a jaw made in the new ones?

Ans. I think I could.

X Ques. 280. Please to examine Hall's Ex.'s Nos. 17 and 18 and state if either of those were made in the new die; and, if so, which of them.

Ans. I should say that Hall's Ex. No. 18 was made in the new die.

X Ques. 281. Was the long end of the jaw made from the old die thicker or thinner than the long end of the jaw made in the new die?

Ans. I do not recollect.

X Ques. 282. Do you recollect whether or not they were about the same thickness in the rough?

Ans. I do not.

X Ques. 283. In milling the new nipper jaws how much material did the milling tools cut off from the sides of the long end of the jaws?

Ans. My instructions were to leave in the forging twenty *thousands*) thousandths) for finish, but they would vary from that to thirty-five *thousands* (thousandths); perhaps more.

X Ques. 284. Your instruction to whom?

Ans. Colt's Patent Fire-Arms Manufacturing Company.

X Ques. 285. Do you mean that you instructed the Colt's Patent Fire-Arms Manufacturing Co. to make the forging so as to leave a cut for the milling tool on each side of the long end of the lever of about ten-thousandths of an inch?

Ans. That is the amount of the cut intended all over the jaw of the nipper, except a few points. These points were the edge of the jaw, and in the circular cut below the edge, and for the spring seat.

X Ques. 286. State if you recollect of seeing Mr. Whittlesey file off the sides or cheeks of the jaws of the skeleton model Ex. C for Mr. Johnson.

Ans. I do not recollect.

X Ques. 287. Are you certain that Mr. Johnson made the jaws of model C out of a pair of old jaws—I mean the jaws as they were before the dies were altered?

538 Ans. I am not positive.

X Ques. 288. Please to examine the milling-vise jaws comprising Hall's Ex. 19 and state if you recognize them as the first milling-vise jaws you had made for the Interchangeable Tool Company.

Ans. They have the general appearance of the first milling-vise jaws made for the Interchangeable Tool Co.

X Ques. 289. State if you recollect who made them.

Ans. To the best of my recollection, Mr. Moses C. Johnson did the greater part of the work on them.

X Ques. 290. What is the object of the pins on the inside of these jaws?

Ans. They make a seat and stop for the nipper jaw while milling.

X Ques. 291. By the expression "seat and stop" do you mean that the pins form a support for the nipper jaw to rest upon while milling, and at the same time serve as a gauge, by which, in connection with the mills, the width of the nipper jaw is formed?

Ans. I mean that the several pins locate the nipper jaw in the vise jaw, so that when the machine is properly adjusted the same amount of stock will be removed from each jaw.

X Ques. 292. Is the effect of that operation to make all the jaws of exactly the same width?

Ans. It is, with the exception of the differences in the stock and the wearing of the mills.

X Ques. 293. What do you mean by "the differences in the stock and the wearing of the mills" in your last answer?

Ans. Some of the jaws are not properly annealed, consequently are much harder than others, and by constant milling the mills are worn away

X Ques. 294. But, as I understand you, the intention is that the "mills," taken in connection with the milling-vise jaws, shall cut the nipper jaws all exactly alike, provided the forgings have been properly annealed and the milling tools are in their normal condition?

Ans. Precisely so.

X Ques. 295. Please to take the milling-vise jaws, Hall's Ex. No. 19, and the jaw making part of model C, having the letter scratched onto it, to which you have referred, and state whether or not in your opinion it was milled in these jaws.

Ans. I do not know.

539 X Ques. 296. Well, what is your opinion about it, I asked you?

Ans. I have no opinion about it.

X Ques. 297. Do you decline to express an opinion upon the subject?

Ans. I have no *recollect* (recollection), and therefore cannot express an opinion.

X Ques. 298. Do you mean that you do not recollect whether that jaw was milled in that milling-vise jaw or not?

Ans. I do not.

X Ques. 299. What did you mean by your answer when you say I have no recollection, and therefore cannot express an opinion?

Ans. I mean that my recollection is so indistinct upon this point that I cannot express an opinion.

X Ques. 300. It is not a question of recollection at all, but a question of opinion upon the facts before you. You have the milling-vise jaws and the jaw of the model before you. Now please to state whether in your opinion upon the appearance of the nipper jaw it

was milled in these milling-vise jaws and with the milling tools used in connection with that.

Ans. It is my opinion that it was held in some jaw; it might have been the vise jaws referred to or it might not have been.

X Ques. 301. Well, what is your opinion? Was it held by these jaws or not, and milled with the tools made to work in connection with these jaws?

Ans. It has the appearance of being used for adjusting the machines for use, and by accident or intention the jaw was milled; but I have no knowledge. In adjusting the mills the jaw might have been used in the vise.

X Ques. 302. You will observe that the jaw of this model nipper, Ex. C, when put in the milling-vise jaws with its outside up and placed down upon the pins its surface falls below the surface of the vise jaws. Do you observe that fact?

Ans. I do.

X Ques. 303. How could that model jaw be used to adjust the milling tools by, that state of facts existing, and still have the marks of the milling tool on it all round?

Ans. The pin upon which the jaw rests may have been reduced since, but I have no recollection, Mr. M. C. Johnson having had immediate charge of this work.

540 X Ques. 304. What object could there be in using that model to adjust the milling tools by after the milling-vise jaws had been made?

Ans. The custom is to adjust the mills to the milling-vise jaws and not the milling-vise jaws to the mills. The model nipper jaw might have been used for this purpose.

X Ques. 305. Why should the model nipper jaw be used at all in the adjustment of the mills to the milling-vise jaws?

Ans. There are several mills used in forming one edge. These mills are made so as to be extended or contracted to correspond with the form of the model nipper jaw. If this set of mills when together would mill the piece too short we expand them by putting paper washers between them and use the model or templets for that adjustment.

X Ques. 306. Must not the mills correspond exactly in their conformation to the milling-vise jaws?

Ans. Not necessarily.

X Ques. 307. Well, don't they in point of fact?

Ans. Oftentimes they do not.

X Ques. 308. When did you ever see a set of mills that did not correspond with the milling fixtures that holds the thing to be milled?

Ans. I used them myself often.

X Ques. 309. What for?

Ans. In numerous kinds of mechanical work.

X Ques. 310. Well, specify the kinds of work.

Ans. Almost all kinds of jobbing.

X Ques. 311. Well, specify the kind of work and when and where you did it.

Ans. On tool-work and in work of that general description at Pratt & Whitney Company, Interchangeable Tool Company, E. W. Bliss, and during the last ten years. It was a very common thing.

X Ques. 312. Can't you fix the date any nearer than ten years, and can't you specify the thing on which you used your milling tools in that way? Please to specify the work which was done by you in the shops of the Interchangeable Tool Co.

Ans. The cutting mills at the Interchangeable Tool Co.'s shop; and on parts of Devoeh's improved soldering machine, Brooklyn, N. Y.; at the shop of E. W. Bliss, and on gauges at the shops of Pratt & Whitney Co.

541 X Ques. 313. What kind of milling fixtures or vise did you cut the "mills" at the Interchangeable Tool Co.'s shop? Was not that done on an index milling machine?

Ans. It was.

X Ques. 314. Did you ever see a competent tool-maker in manufacturing new tools take the parts of his model nipper and put them in the milling fixture or milling-vise jaws for the purpose of adjusting his milling tools by?

Ans. I do not recollect.

X Ques. 315. Would you not look upon a tool-maker that would pursue that practice as little better than an idiot?

Ans. Such a tool-maker might be called a little careless.

X Ques. 316. How do you account for the blunt edge on one of the jaws of the model nipper? I mean that jaw that has the letter on.

Ans. I do not pretend to account for it.

X Ques. 317. Why should the edge of one jaw be blunt and the other sharp?

Ans. I do not know.

X Ques. 318. Was it made originally with a blunt edge?

Ans. I do not know.

X Ques. 319. If the jaw was made with a sharp edge it would have a sharp edge still, unless it was taken off by the milling tool, would it not?

Ans. It might have been taken off by a file or by some other instrument. I have no knowledge or recollection of it.

X Ques. 320. During the time that you was superintendent of the Interchangeable Tool Co. were the men all under your direction and supervision?

Ans. They were directly or indirectly.

X Ques. 321. Did you give Mr. M. C. Johnson the plates out of which the handles of Ex. C were made?

Ans. I did.

X Ques. 322. Where was Mr. Thomas G. Hall's office during the time that you were superintendent of the Interchangeable Tool Commany?

Ans. I did not know that he had any office, except that he was president of the Interchangeable Tool Co.

X Ques. 323. Where did the Interchangeable Tool Co. have its office?

542 Ans. At their shops in the American Express building, in Hudson street, New York.

X Ques. 324. How often did Mr. Thomas G. Hall visit the office and works of the Interchangeable Tool Co. during the time that you was superintendent?

Ans. His visits were not frequent for the first six months or so—perhaps once a week. Sometimes I should say two weeks apart.

X Ques. 325. Who of the men in the Interchangeable Tool Co.'s shop gave Mr. Johnson the credit of having invented the improvements upon this nipper involved in this interference?

Ans. To the best of my recollection, they all gave him the credit.

X Ques. 326. Please to mention the names.

Ans. Mr. Whittlesey and myself, and I never heard a doubt expressed from the rest.

X Ques. 327. Did Mr. Johnson ever claim to you to be the inventor?

A. Not in those words, but in substance.

X Ques. 328. Did he ever express to you a determination to apply for a patent for it?

Ans. I do not recollect.

X Ques. 329. Previous to this so-called improvement of Mr. Johnson was not the Hall nipper composed of two side plates, the independent fulcra for the jaw levers and the hand levers, the jaw levers provided with cutting edges, and the V-shaped spring between the jaws?

Ans. Those are some of the parts of which it was composed at the time of my engagement with them.

X Ques. 330. Now upon that nipper, as it was when you went into the employ of the Interchangeable Tool Co., you put the section of the interlocking cog gearing, as it appears in model Ex. D. After that had been done what was there left for Mr. Johnson to invent which makes a part of the combination which is the subject-matter of this interference?

Ans. Mr. Johnson improved upon my interlocking of the handles, so that instead of having a number of teeth upon each handle, as in the model Johnson's Ex. D, he had but one tooth and one notch, as in Johnson's Ex. C. In Ex. D it would require several cuts on the machine on each handle, whereas in Johnson's Ex. C only one cut on each handle is required. By cut I mean operation.

543 X Ques. 331. Have you ever presented a claim or made out a claim against the Interchangeable Tool Co. for this invention?

Ans. I have not.

X Ques. 332. Why did you leave the employ of the Interchangeable Tool Co.?

Ans. I became dissatisfied.

X Ques. 333. Did you leave the employ of the company of your own motion or was you dismissed?

Ans. I resigned of my own accord.

X Ques. 334. Have you ever been in the employ of Henry G. Thompson?

Ans. I have not, directly.

(Witness desires to add the following to his answer to question No. 330: Mr. M. C. Johnson also proposed to me to leave the lips just above the spring as long as possible, as it would prevent cuttings and chips from falling into the spring.)

Redirect examination by THEO. G. ELLIS, Esq.:

R. D. Ques. 335. In making "mills" for cutting out articles of metal what effect has the tempering of such mills after they are made upon their general shape?

Ans. They almost invariably change their shape, more or less, according to their shape and size.

R. D. Ques. 336. State if you know how they are brought back to their proper form.

Ans. The mechanical term used is adjusting, and they are brought back to their proper shape by grinding and scraping; also by putting paper washers between the different mills. The grinding and scraping gives their proper shape and paper washers their proper length.

R. D. Ques. 337. What method is used to test the mills to find if they are in proper adjustment?

Ans. They are tried by the templet or model.

R. D. Q. 338. If the mills were made from one of the jaws of Ex. C, as a templet, and the mills were adjusted by the same jaw as a templet, would it or not account for the scratches or marks evidently made upon one of those jaws by a milling tool?

544 Ans. I can account for it in no other way.

R. D. Q. 339. Was it or not a custom in the shops of the Interchangeable Tool Co. to *make* models with the letter "m?"

Ans. That was my instruction.

R. D. Q. 340. Who did such marking in the shop of the Interchangeable Tool Company?

Ans. I had the impression that Mr. Johnson and Mr. Whittlesey both have marked pieces that way.

(Counsel for Johnson would here state on the record that he has had no conversation whatever with the witness since his examination this morning.)

(Witness desires to explain as follows, to wit: In regard to the drawing marked Hall's Ex. No. 1, I am less positive in regard to my testimony. In identifying the drawing in my testimony I examined more especially the shape of the jaw where it comes in contact with the handle lever, and remember distinctly the conversation with Mr. Johnson in regard to its shape. It might have been from another sketch of the jaw instead of the one of Ex. No. 1.)

JAMES M. ADAMS.

(I), HENRY G. THOMPSON, of the town of Milford, in the State of Connecticut, being duly sworn, doth depose and say, in answer to interrogatories proposed to him by THEODORE G. ELLIS, Esq., counsel for Moses C. Johnson, as follows, to wit:

Ques. 1. What is your name, age, residence, and occupation?

Ans. My name is Henry G. Thompson; age, sixty-three; I reside in the town of Milford, and I am a manufacturer of machinery.

Ques. 2. Are you acquainted with the Interchangeable Tool Co. of New York? And, if you are, state when you first became acquainted with said company and under what circumstances.

Ans. I am. I first became acquainted with the Interchangeable Tool Co. in the month of February, 1880. They applied to me to purchase or rent the engine, boiler, shafting, and fixtures in the Milford steam-power building in the town of Milford.

545 Ques. 3. Are you acquainted with Thomas G. Hall, the president of said company, one of the parties to this interference?

Ans. I am.

Ques. 4. Did you have any conversations or transactions with Mr. Hall about the time of your first acquaintance with said company? If you had, state generally what they were.

Ans. On the 12th day of February, 1880, two gentlemen called upon me, one of them Mr. A. Gustam, who introduced to me Mr. Thomas G. Hall, as president of the Interchangeable (Tool) Company. Mr. Hall stated to me that they had made arrangements with the Milford Steam Power Company for the rental of their property, with the right of purchase, provided they could arrange with me for the engine, boiler, shafting, and fixtures. They wanted to know what my price was and terms for the purchase of the property or rental of the same. They said that they were poor in funds at that time. I gave them a price, remarking at the time that if the business was as good as it was represented, as I was not in want of cash, I would dispose of it to them and take pay therefor in stock of the company, provided they would give answers to such questions as I might ask and their answers were satisfactory as to their standing and responsibility.

(Answer objected to by counsel for Hall upon the ground that it is utterly impertinent and immaterial, and gives notice of motion that upon the hearing he will move to strike out the answer.)

(Counsel for Johnson here states that the testimony now offered is for the purpose of showing the relation of the parties and clearing up and explaining much of the irrelevant testimony which has been elicited from witnesses upon the cross-examination.)

(Counsel for Hall renews his objection and insists that if it refers to anything that is irrelevant it is inadmissible and can only serve to burden the record and embitter the controversy.

Ques. 5. State whether or not Mr. Thomas G. Hall made the statements you required and what they were.

(Same objection and same notice.)

546 Ans. In answer to my questions Mr. Thomas G. Hall stated to me that there was not any liability of the shareholders; 2d, that the company had voted to increase their capital stock from fifty thousand to seventy-five thousand dollars, for which they had applications at the par value thereof, which they had declined, as they could dispose of it at a premium of 2½ to 5 per cent.; 3d, that with an increased capital stock the company would be entirely out of debt and have ample means with which successfully to prosecute their business; 4th, that the company was manufacturing their nippers at a cost of 28 cts. a pair, which they were selling at $9 per dozen; 5th, that they expected to declare a dividend in the spring of 1881; 6th, that the Co.'s patents, which they owned, covered the compound lever as applied to cutting nippers, also the side plates, thereby securing to them a monopoly in their manufacture; 7th, in addition to which the company had control of his patent self-adjusting vise, from which they expected large returns.

(Answer objected to upon the grounds before stated, and upon the further ground that the witness read his answer from a written paper; that even if it be true it is an unwarrantable exposure of a confidential communication.)

Ques. 6. State whether or not you sold the property you have before named, to wit, engine, boiler, shafting, and fixtures, to the Interchangeable Tool Company, and what, if anything, you received in pay for it.

(Same objection.)

Ans. I did, and received in payment thereof 67 shares of the stock of the Interchangeable Tool Company.

(Answer objected to as before.)

Ques. 7. State, if you know, when the Interchangeable Tool Company commenced the manufacture of nippers at their factory in Milford.

(Objected to as before.)

Ans. They commenced on the first day of March, 1880, to run their machinery for the manufacture of nippers.

547 (Same objection as before.)

Ques. 8. As a stockholder in the Interchangeable Tool Company, did you or not make yourself familiar with what was being done by the company and by the workmen in their shop?

(Question objected to as impertinent, irrelevant, and immaterial.)

Ans. I did.

Ques. 9. State whether or not you made any investigation with regard to the statements made to you by Mr. Hall that you have before named. And, if you did, what was the result?

(Same objection as before.)

Ans. I did make an investigation and I found that the first statement Mr. Hall made to me about the liability of the shareholders was not true, from the fact that the company had failed to file their annual statements with the county clerk, as required by statute; as to the second statement, I found that instead of the stock being at a premium of from 2½ to 5 per cent. it could not be sold at 50 cents on a dollar; as to the 3d statement, I could not say, for the company never sold their stock and never had the means to put them out of debt; as to the 4th statement, in regard to the cost of the company's nippers, I would state that, being a stockholder, I had the right of access to the company's books, and I spent the better part of three days in investigating the cost of the nippers as then manufactured by the company. The result was that instead of the nippers costing 28 cents they were costing them nearer 78 cents per pair; as to the 5th statement, that they expected to declare a dividend in the spring, they never did make any, but did make a dividend of fifty cents on a dollar of their indebtedness to their creditors, payable in their own notes; as to the 6th statement, as to the claims which they owned as to the compound lever as applied to cutting nippers, also the side plates, thereby securing to the company a monopoly of their manufacture, I found to be false; and as to the 7th, regarding Mr. Hall's self-adjusting vise, I found that his patent was invalid, from the fact that the same idea or device had been patented before in the year 1861, which then made it common property.

548 (Answer objected to upon the grounds before stated, and notice of motion to strike out given.

Ques. 10. Did you or not communicate the result of your investigations to Mr. Thomas G. Hall, and, if you did, what conversations did you have on the subject?

(Question objected to as immaterial.)

Ans. I did communicate with Mr. Hall upon two points: First, as to the cost of the nippers, in which I showed him that the company were not getting the cost of the nipper back again at the price at which they were sold, and, as to the second point, that the company had no claim upon compound levers and side plates as applied to cutting nippers.

(Answer objected to as before.

Ques. 11. When was your attention first called to the construction of the nippers manufactured by the Interchangeable Tool Company and their relations to the claims of Hall's patent of November 5th, 1878?

(Objected to as before.)

Ans. My attention was first called to the cutting nipper as manufactured by the company by one being shown to me by Messrs. Hall and Gustam on the 12th day of February, 1880.

(Answer objected to as before.)

Adjourned to December 28th, 1881, at 10 a. m.

549 DECEMBER 28TH, 1881, at 10 a. m.

Met pursuant to adjournment.

Counsel present as before.

Ques. 12. Did you or not about this time that your attention was first called to the cutting nippers have any conversations with Mr. Thomas G. Hall with regard to his patent of November 5th, 1878, filed in this case as an exhibit and marked Hall's Ex. No. 7, and its relations to the nipper as then manufactured? If you did, please state what those conversations were in substance.

(Objected to as immaterial and irrelevant; notice of motion to strike out as before.)

Ans. Subsequent to the first day of March, 1880, I had several conversations with Thomas G. Hall respecting the nipper being manufactured by the company and his patent of the 5th of November, 1878, to which I called his attention, stating that he had no claim for the compound lever as applied to cutting nippers, neither for the side plates which he assured me on the 12th day of February, 1880, were covered by his patent; in reply to which he stated that his patent of 1867 covered the compound lever.

(Answer objected to as incompetent and immaterial; notice of motion to strike it out at the hearing.)

Ques. 13. State whether or not in consequence of these conversations and investigations you had any examination made of the state of the art; and, if you did, state who made such examination and what was the result.

(Objected to as incompetent, irrelevant, and immaterial.)

Ans. Subsequent to the company's delivering to me 67 shares of stock of the Interchangeable Tool Company on the 31st day of March, 1880, I made up my mind to thoroughly investigate
550 this nipper business, and my first step was to go to Boston and secure the services of my attorney, George W. Gregory, to proceed to Washington and thoroughly post me up as to the state of the art in the manufacture of cutting nippers; from whom I subsequently learned that the first patent issued by the United States Government which showed the compound levers in bolt cutters was issued to J. N. Wallace on the 27th day of December, 1864, No. 45659. I also found that the first patent to show the interlocking of the handles by means of gearing or gear teeth was issued to Wallace & Whitbeck on the 21st day of March, 1865, No. 46960. That was for bolt cutters.

I also found that the first patent ever issued for cutting nippers, showing the interlocking of the handles by means of gear teeth, with the compound lever and side plates, was issued on the 5th day of June, 1866, No. 55366, to D. D. Robinson.

I also found a patent issued to Thomas G. Hall for cutting nippers, on the 14th day of May, 1867, No. 64664, did not claim any compound lever by itself, but that Mr. Hall's patent was an exact

copy of a patent issued to W. Nash on the 3d day of January, 1865, being numbered 45738, with the exception that Mr. Hall had substituted a straight cutting edge instead of a circular one. I also found that the patent issued to Thomas G. Hall for cutting nippers, bearing date the 5th day of November, 1878, No. 209,677, was not in use by the Interchangeable Tool Co.

(Answer objected to upon the same ground as the question is objected to, and same notice to strike out given.)

(Counsel for Johnson gives notice to counsel for Hall that the official records of the Patent Office relating to the patents named in the foregoing answer will be used at the hearing of this interference at the United States Patent Office.)

Ques. 14. Are you acquainted with Mr. Moses C. Johnson, one of the parties to this interference? If you are, state when you first became acquainted with him.

Ans. I am acquainted with Moses C. Johnson, and I first became acquainted with him when the company moved into the shop at Milford. He was acting as superintendent.

551 Ques. 15. Did you have any conversations with Mr. Moses C. Johnson with regard to the invention of the improvements in cutting nippers which form the subject-matter of the present interference? If you did, please state when you first had such conversations and generally what they were.

(Objected to as being incompetent and immaterial, and especially upon the ground that any conversation that the witness may have had with Mr. Johnson at that time cannot be evidence upon any issue in the case.)

Ans. I did have several conversations with Mr. Johnson about the improvements made in the cutting nipper then manufactured by the company, and asked him how it was that all of the nippers being made by the company were stamped, bearing the date of Hall's patent of the 5th of November, 1878, whereas there was not a particle of the nipper, as then manufactured, that was covered by his claim. In reply he stated that the nipper, as then being manufactured, in combination, was his own.

(Answer objected to as before.)

Ques. 16. Did you or not make any offers to purchase Mr. Johnson's invention? And, if you did, state what the offer and conditions were.

(Same objection and notice as before.)

Ans. Mr. Johnson had previously informed me in one of his conversations on this subject that he was going to apply for letters patent for the improvements on the nipper, as then manufactured by the company, he stating at the same time that a party in New York (the name I do not now recollect) stood ready to give him five hundred dollars for the patent and be at the expense of securing the same. In reply to which I stated that his saying that he invented

the nipper, or Mr. Hall saying the same, would not amount to anything in case a patent was issued to him and an interference declared, in consequence of a subsequent application that might be made by Mr. Hall for the same thing; that if he would give me the names of parties by whom he could prove that the improvements, as
552 then applied to the nippers then being manufactured by the company, were his own and would give me thirty days to investigate, and I was satisfied that he was the inventor, I would give him one thousand dollars in the stock of the Interchangeable Tool Company and be at all the expense of securing the patent.

(Same objection and same notice as before.)

Ques. 17. Did you or not purchase Johnson's invention on the terms you have above stated, and was the patent issued to you as assignee?

(Same objection and same notice as before.)

Ans. I did purchase the invention from Mr. Johnson, and the patent was issued therefor, through my attorney, George W. Gregory, on the 5th day of October, 1880, and duly assigned to me before the issue of letters patent.

(Same objection and same notice as before.)

Ques. 18. Mr. Thomas G. Hall, in giving his testimony in this interference, has stated that he never heard of Mr. Johnson making any claim to the invention now in dispute. Do you or not know of anything to the contrary? If you do, please state what you know about it.

Ans. Mr. Thomas G. Hall, early in the month of May, 1880, did of his own accord inform me that he understood that Mr. Moses C. Johnson claimed to be the inventor of the nipper as then constructed by the company.

Ques. 19. Mr. Thomas G. Hall has stated in this interference that the Interchangeable Tool Company paid Mr. F. A. Prescott, of Washington, D. C., about six hundred dollars for his services, and he also stated that the overtures made by said Prescott to Moses C. Johnson and the services, on account of which he wrote to the company for cash, under date of the 14th of March, were entirely unknown to the company. State what you know about this matter.

Ans. I was present on the 12th day of October, 1881, at the time Mr. Hall gave that evidence in the office of Mr. Broadnax, in New York city. Subsequent to the adjournment of that day's proceedings, I went to the Union League Club, on Fifth avenue, in New York city, and wrote a letter to F. A. Prescott, of Washington, D. C., stating in substance Mr. Hall's testimony, and that he had
553 put in as exhibit his letter of the 14th of March, 1881, in which he calls upon the company for the sum of one hundred and twenty-five dollars for securing evidence in the interference now pending, and I particularly asked him to answer two questions: First, is it true that the Interchangeable Tool Company have paid you six hundred dollars for services rendered in this case? Second,

is it true that you made overtures to Mr. Johnson to sign certain papers for a pecuniary consideration, without the knowledge and assent of the company or any of its officers? In reply to which I received from Mr. Prescott a letter dated October 21st, 1881, and which reads as follows:

"1329 F STREET, WASHINGTON, 21*st Oct.*, 1881.

"DEAR SIR: Having been out of town, I have only now received your favor of the 12th inst. In reply I have to say that Mr. Hall's testimony is in many respects totally false. I have not yet determined whether I can with propriety testify in the case, nor whether my business in Washington would permit my absence for that purpose; and so far as any vindication of myself is concerned I can, if necessary, reach it in another way. I have written Gen. Ellis, asking the loan for one day of the testimony in the case, which I desire to examine.

"Your obedient servant, F. A. PRESCOTT.

"Henry G. Thompson, Esq., Milford, Conn."

(This letter offered in evidence by counsel for Johnson and marked Johnson's Ex. E.)

(Answer and exhibit objected to upon the ground that it is incompetent and immaterial, and upon the further ground that it is irresponsive; that the question calls for what the witness knew and was not objected to because counsel thought it might bring out some facts or actual knowledge possessed by the witness relevant to the question, but as the answer is mere hearsay and a letter from another person not under oath it — utterly inadmissible as evidence for any purpose, and counsel gives notice of motion to strike it out.)

554 Ques. 20. Were you present when Mr. Thomas G. Hall first heard that Moses C. Johnson had the patent granted upon improvements in cutting nippers, dated October 5th, 1880?

(Question objected to upon the ground that it was impossible for the witness to know where Mr. Hall first heard of the Johnson patent, and upon further ground that it is immaterial.)

Ans. I believe I was.

Ques. 21. Did you have a conversation with Mr. Thomas G. Hall after this patent was granted relative to said patent? If you did, please state what that conversation was.

(Question objected to as incompetent and immaterial.)

Ans. I did, with Mr. Hall and other members of the company, several times, and the ground then taken by the company was that Mr. Johnson had no rights to the patent, as he was paid for his time and services by the company, to whom the patent rightly belonged. They also denied that Mr. Johnson got up the invention.

(Same objection as before.)

(Question and answer withdrawn by counsel for Johnson.)

Ques. 22. Is there anything else relative to the transactions and conversations between yourself, Mr. Thomas G. Hall, Mr. Moses C. Johnson, or the members of the Interchangeable Tool Company that you would like to state as having a bearing upon the present interference? If there is, please state it.

(Question objected to as being vague and indefinite and as not intended to confine the witness's answer to such matter as may be competent and material upon any question involved in this controversy.)

Ans. At the time the company were first informed that I owned the patent issued to Moses C. Johnson for improvements on cutting nippers, the ground the company assumed was that Moses C. Johnson, being an employee of the company, had no rights to the patent; secondly, that the nippers having been on the market and in public use before the application was made the patent was invalid. I subsequently met the company at their request, at
555 the office of their attorney, in New Haven, and, at their request, fixed a price for which I would transfer the patent to them, the price being $3,000, which they declined, that being but a trifle more than what my connection with the company had cost me.

(Objected to as incompetent and immaterial.)

Examination-in-chief closed.

(Counsel for Hall declines to cross-examine the witness, but insists upon his objections and renews his notice of motion to strike out all of the questions and answers of the witness's testimony to which he has objected.)

HENRY G. THOMPSON.

Testimony on behalf of Johnson is closed. Stipulated by and between the counsel for Johnson and the counsel for Hall that the exhibits in this case shall remain in the hands of the respective counsel until the evidence is in.

THEO. G. ELLIS,
Att'y for Johnson.
AMOS BROADNAX,
Att'y for Hall.

STATE OF CONNECTICUT, } ss:
County of New Haven, }

THOMAS G. HALL *vs.* MOSES C. JOHNSON.

I, Julius Twiss, a notary public within and for the county of New Haven and State of Connecticut, do hereby certify that the foregoing depositions of James M. Adams and Henry G. Thompson were taken on behalf of Moses C. Johnson, in pursuance of the notice
556 hereto annexed, before me, at my office, rooms Nos. 5 and 6, No. 69 Church street, in the city of New Haven, in said

county, on the 22d, 23d, 24th, 27th, and 28th days of December, 1881; that said witnesses were by me sworn before the commencement of their testimony; that the testimony of each of said witnesses was written out by myself; that the opposing party, Mr. Thomas G. Hall, with his counsel, were present during the taking of said testimony; that said testimony was taken at No. 69 Church street, in the city of New Haven and county aforesaid, and was commenced at 10½ o'clock a. m., on the 23d day of December, 1881, was continued, pursuant to adjournments, on the 23d, 24th, 27th, and 28th days of December, 1881, and was concluded on the 28th day of said month; that I am not connected directly *and* indirectly in the matter in controversy.

In testimony whereof I have hereunto set my hand and affixed my seal of office, at the city of New Haven, in said county, this 28th day of December, 1881.

[SEAL.] JULIUS TWISS,
Notary Public.

557 In the Supreme Court of the United States.

HENRY G. THOMPSON, Appellant,

against

THOMAS G. HALL, JAMES F. OLIVER, SAMUEL LEOPOLD, and DAVID L. HARRIS, Respondents.

It is hereby agreed and stipulated by the parties to this suit and appeal that all the original exhibits, certified as such by B. Lincoln Benedict, clerk of the circuit court for the second circuit and eastern district of New York, now on file with and under control of the clerk of this Court, shall be included in and form part of the transcript of record herein, and may be read and referred to on the hearing of this appeal as parts thereof.

The Exhibit "Interference Record" to be printed by the clerk before the hearing.

Dated New York, January 17th, 1889.

HORACE BARNARD,
Counsel for Appellant.
AMOS BROADNAX,
Counsel for Appellee.

558 [Endorsed:] Sup. Court U. S. Oct'r term, 1888. No. 186. Henry G. Thompson, app't, *vs.* Thos. G. Hall *et al.* Stipulation as to "interference record" & making exhibits part of record. [Stamped:] Office Supreme Court U. S. Filed Jan. 19, 1889. James H. McKenney, clerk.

De L. KENNEDY. 560

Griping and Cutting Tools.

No. 148,566. Patented March 17, 1874.

No. 186. Thompson & Hall et al. } p. 560

Fig 1.

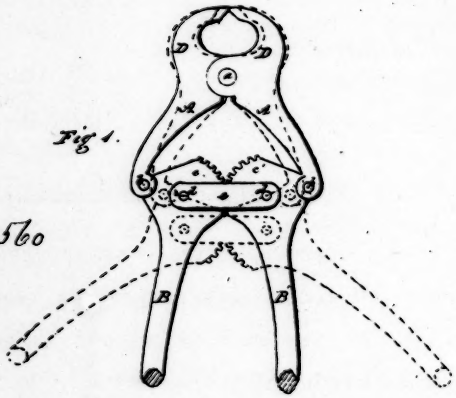
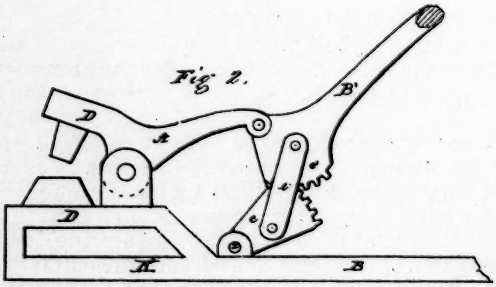


Fig 2.



Witnesses.
C C Wilson
Wm E Chaffee

Inventor
De Lancy Kennedy
by Attorney
W. Morris Smith

559 In the Supreme Court of the United States.

HENRY G. THOMPSON, Appellant,
against
THOMAS G. HALL, JAMES F. OLIVER, SAMUEL LEOPOLD, and DAVID L. HARRIS, Respondents.

It is stipulated and agreed by the parties to this suit and appeal that the annexed "Defendants' Exhibit No. 2, Drawing Kennedy Nipper," may become part of the transcript of record herein and may be inspected and referred to in the hearing of the appeal, the same to be printed by the clerk before the hearing of this appeal.

Dated January 17th, 1889.

HORACE BARNARD,
Counsel for Appellant.
AMOS BROADNAX,
Counsel for Appellee.

(Here follows diagram marked p. 560.)

561 UNITED STATES PATENT OFFICE.

DE LANCY KENNEDY, of New York, N. Y.

Improvement in Griping and Cutting Tools.

Specification forming part of Letters Patent No. 148,566, dated March 17, 1874; application filed November 4, 1873.

To all whom it may concern:

Be it known that I, De Lancy Kennedy, of the city, county, and State of New York, have invented an improved construction of griping tools, punches, shears, &c., of which the following is a specification:

This invention relates to a novel means of applying, and gradually increasing, power in such implements as are used for cutting, shearing, or punching, either by hand or otherwise; and it consists in the application to the levers of such instruments of two rolling cams, whereby the deviation of the bearing or contact point of said cams from the straight line between the points of resistance is gradually reduced, and a solid bearing, as contradistinguished from pivotal bearings, is obtained, thus rendering the instrument easier of operation, more powerful, and less liable to wear or fracture.

I will now proceed to describe my invention by reference to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a side view of a pair of hand-cutting pliers or nippers closed; and, in dotted lines, in the open position of the jaws. Fig. 2 represents a similarly-constructed apparatus, adapted to have one of its limbs secured to a bench, or in the jaws of a vise, for shearing, punching, or other use requiring more power than the gripe of the hand will afford.

In Fig. 1, A A represent the cutting-levers, which are pivoted together in the usual manner at *a*, and to the rearward ends of these levers are pivoted, at *b*, the hand-levers B B′, which are provided with inwardly-arranged eccentric-cams *c c′*, which, by the motion of the levers B B′ are caused to move around their pivots *b*, to which their peripheries are eccentric, and whereby they have a gradually-increasing leverage on the cutting-levers A A, and, being toothed on their peripheries, gear together, and are thus prevented from slipping. The axes *d* of the peripheries of these cams are connected by a link, *e*, on either side, by which their contact is preserved while the levers B B′ are being separated to open the jaws of the nippers.

In Fig. 2 is represented an instrument, one jaw, K, of which is designed to be secured to a bench, or in the jaws of a vise, or to rest its whole length on a table, the one lever, B, only being movable.

This instrument is practically the same as that before described, except that, owing to the lower lever B being stationary, the lower cam *c* is pivoted to it at *x*. Its action, then, in combination with the cam *c* and links *e*, will be precisely the same as that before described and represented in Fig. 1.

By this construction, the bearing point or contact of the cams is more nearly in, and more gradually approximating to, a straight line between their fulcrums or connecting-points with the levers A A of the cutters than can be obtained with the ordinary toggle-levers, and the resistance is borne by the peripheries of the cams instead of by pins or pivotal connections, which are weak, liable to wear, and consequently imperfect in action.

What I claim as new, and desire to secure by letters patent, is—

The jaws D, having a common fulcrum, *a*, and levers A, in combination with the cam-levers B B′, linked together in the manner described, and pivoted, upon their sides, to the ends of the levers A, whereby an increased leverage is obtained, substantially as set forth.

DE LANCY KENNEDY.

Witnesses:
WILLIAM E. CARPENTER.
GERSHOM VAN ALLEN.

562 [Endorsed:] Supreme Court U. S. 1888, October term. No. 186. Henry G. Thompson, app't, *vs.* Thos. G. Hall *et al.* Stipulation and addition to record. Filed Jan'y 19, 1889.

563 In the Supreme Court of the United States.

HENRY G. THOMPSON, Appellant,

against

THOMAS G. HALL, JAMES F. OLIVER, SAMUEL LEOPOLD, and DAVID L. HARRIS, Respondents.

It is hereby stipulated and agreed by the parties to this suit and appeal that the annexed Deponent's Exhibit Rogers' Settlement with Thompson, marked J. E. B., Sp. Ex'r, 23d May, 1884, may

become part of the transcript of the record herein, and may be read and referred to on the hearing as part thereof, the same to be printed by the clerk of this Court before the hearing of this appeal.

Dated New York, January 17th, 1889.

HORACE BARNARD,
Counsel for Appellant.
AMOS BROADNAX,
Counsel for Appellee.

564 *Defendants' Exhibit Rogers' Settlement with Thompson.* (*J. E. B., Sp. Ex'r.* 23*d May*, 1884.)

This agreement, entered into between Henry G. Thompson, of the town of Milford, in the county of New Haven and State of Connecticut, and The Interchangeable Tool Company, a corporation organized by and under the laws of the State of New York, and Henry S. Rogers, of Milford, aforesaid, the trustee in insolvency of the estate of said company, witnesseth:

That the contracting parties hereto agree—

1st. That all suits heretofore instituted and now pending between the parties are to be withdrawn upon the signing of this agreement by all the contracting parties.

2nd. That the Interchangeable Tool Company aforesaid will pay to said Thompson all costs and cash expenses in the suit in the United States district court, except attorney fees.

3rd. That the said trustee and the said Interchangeable Tool Company agree to, and do hereby, sell, assign, and convey to the said Thompson the engine, boiler, shafting, fixtures, etc., now situated in the steam-power company's mill at Milford, being the same property that the said Thompson sold and conveyed to the said Interchangeable Tool Company, by bill of sale dated February 12th, A. D. 1880, for and in consideration of the said Thompson
565 reconveying to the said company the sixty-seven (67) shares of the stock of said company received by him as a consideration of the aforesaid sale and conveyance of the said engine, boiler, shafting, fixtures, etc.

4th. That the said Thompson agrees to, and does hereby lease to, the said Interchangeable Tool Company the said engine, boiler, shafting, fixtures, etc., for the term of one year from the 1st day of May, A. D. 1881, for the yearly rent of three hundred and fifty dollars ($350), payable monthly on the first day of each and every month of said year in advance, and upon non-payment of said rent as aforesaid for the space of ten days this agreement, so far as the lease of said property is concerned, shall be null and void, and the said Thompson shall have full right and power to enter upon and take possession of said property so leased as of his former estate without trespass; and it is further agreed between the said Thompson and the said company that the said company may at any time during said year purchase the said property so leased for the sum of three thousand five hundred dollars, and so terminate this lease.

5th. That the said Thompson hereby agrees not to commence any

suits against Henry S. Rogers aforesaid for any acts of his while acting as trustee of said estate, whether in manufacturing goods or otherwise.

566 6th. It is further agreed between the said Interchangeable Tool Company and the said Thompson that the said company shall keep the engine, boiler, shafting, fixtures, etc., so as above leased by them, in good repair during the term of said lease, and in failure so to do said lease shall terminate as aforesaid.

Dated at New Haven this twentieth day of April, A. D. 1881.

THE INTERCHANGEABLE TOOL CO.,
By THOMAS G. HALL, *President*,
H. S. ROGERS, *Trustee*.
HENRY G. THOMPSON.

567 [Endorsed:] Sup. Court U. S. 1888, Oct'r term. No. 186. Henry G. Thompson, app't, *vs.* Thomas G. Hall *et al.* Stipulation and addition to record

[Stamped:] Office Supreme Court U. S. Filed Jan. 19, 1889. James H. McKenney, clerk.